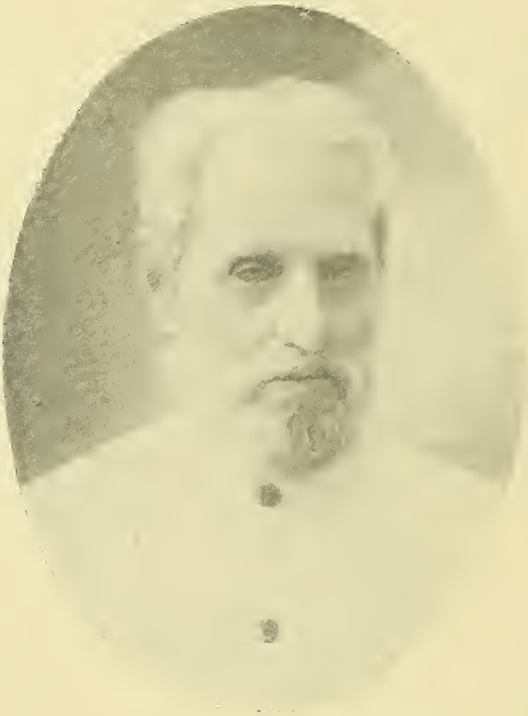

W. B. LAMONT,

AGED 83.

Photo and Half-Tone Block by W. L. H. Skeen & Co., Colombo and Kandy.

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"PIONEERS OF THE PLANTING ENTERPRISE IN CEYLON."

(Third Series.)

W. B. LAMONT:

COFFEE, COCONUT, CINNAMON, CACAO AND TEA PLANTER, 1841-1899.

THE subject of our notice was wont to be described by the late Mr. A. M. Ferguson as the "Hugh Miller" of Ceylon. And, when in his prime, there was a good deal of resemblance between Mr. Lamont and his distinguished countryman—also a self-made man—but our portrait it must be remembered, is taken of the Ceylon Pioneer, as an old man well entered on his 83rd year. In another way there has been a resemblance between W. B. Lamont and Hugh Miller, namely, in the terse, vigorous style which the former gradually acquired and utilized so well in numerous contributions to the *Observer* in his younger and even later days—his sentences often reminding one of much in Miller's "My Schools and Schoolmasters" and other well-known works. Few Ceylon pioneers have had such a diversified experience of planting in the Colony as W. B. Lamont, for he acquired, in due succession, a practical acquaintance with the cultivation of each of our leading products, and is now as much interested in Tea as ever he was in Coffee, Coconuts or Cinnamon. Landing in Ceylon on 17th February, 1841, he proceeded at once to the heart of the then inaccessible district of Ambagamuwa to help to form the "Barcaple" coffee plantation; and after a terrible time of trial, from want of coolies and of nearly everything that has now come to be part and parcel of a planter's life, Mr. Lamont in 1845 changed his employment, being engaged by Capt. Jolly to open Atherton, another unfortunate Ambagamuwa estate. Ten years were passed; and in the beginning of 1853, he was transferred by Capt. Jolly to the more prosperous Poengalla plantation in East Matale. He continued two years more in coffee—16 years in all—and then in the latter part of 1857, left the hill country and took charge of the Ratmalana Cinnamon and Coconut plantation, not far from Mount Lavinia, under the direction of Mr. Robert Dawson as Colombo agent. Mr. Dawson lost the agency in 1859 and Mr. Lamont left to take up "Coffee Store" work at Uplands, under Mr. David Wilson, head of the leading Colombo firm—Wilson, Ritchie & Co.—of that day. This, however, was not congenial work to the hardy Scot who had so long been trained to an out-of-door life and who, like his countrymen, the Douglases, would any day prefer "to hear a lark sing than a mouse cheep"! So, in 1860, Mr. Lamont got charge from Messrs. Darley, Butler & Co. of the estates of Uluambalama and Kimbulpitya (Cinnamon and Coconuts) in the Negombo District. After eleven years of faithful service here, Mr. Lamont got twelve months' leave

—his first and last furlough—and revisited his native Scotland. Returning in 1872, he found soon after, that the proprietor of the estates in his charge, having died, his places had to be sold and a new Superintendent was selected. Mr. Lamont, however, had by this time a little Coconut venture of his own in the Maha-oya Valley—the opening up of which, for we suppose 30 by 10 miles, he has watched from the beginning—and of this he took charge. But another whirligig of change: in 1877 he sold out, and once again got charge of Ratmalana; but only for two years; and then he went to open a lowcountry property—Eilandhu—near Henaratgoda, for the late Mr. A. M. Ferguson, in Coconuts, some Cacao and Fruit, and Tea. Here Mr. Lamont remained seven years and then returned to the Maha-oya Valley where he had still some interests. In 1891 he disposed of these and in 1893 settled on a block of land near Ratnapura, which has been opened as a tea plantation (for himself and partners)—Kosgalla—137 acres out of 313 being planted with tea. This in a letter before us he pathetically calls his "last flitting," the word applied in Scotland to a change of residence—one of the most touching of Border songs being "Lucy's Flitting," written by William Laidlaw, so long the faithful, homely friend and amanuensis of Sir Walter Scott. The subject of our notice, however, belongs to one of the Western counties of the Borderland, to that part of Scotland where lies the scene of Crockett's story of the "Raiders;" for, W. B. Lamont is a Galloway man, and we can recall the interested enquiry of a well-known Banker (in the O.B.C. days) as to what Galloway man could have written a clever story in one of our Christmas numbers, as he had thought he had been the only representative of Galloway in Ceylon! Our reply was that "W.B.L." had left Galloway long before our Banking friend was born. —So much for a brief summary of this old Planting Pioneer's career; but now we have his own autobiographical story written—be it remembered by a man well on in his 83rd year—and in the quaint, homely but eminently readable style which this self-made, honest, industrious and God-fearing Colonist long ago made his own. Let no one despise these simple annals of a cottager's son trained to hard work from childhood and rising by slow degrees:—

"Honour and shame from no condition rise;
Act well your part, there all the honour lies:
Fortune in men has some small difference made—
One flaunts in rags, one flutters in brocade."

AUTOBIOGRAPHIC.

On the 13th of February, 1818, I came to stay in the household of a labouring man—the seventh of ten such guests who arrived at intervals, during twenty years. The place where this event took place was a cottage within five minutes' walk of the mansion-house of Woodhall, a gentleman's seat in the parish of Balmaghee and Stewartry of Kirkcudbright; and there I spent the first five years of my life and began to develop my individuality. My natal place is, in my memory, a lovely spot amid woods and pastures, with an extensive view over an undulating country, the villages of Lauriston in the foreground, and Bengairn in the distance. Unfortunately, an elder brother was accused of knocking down a hare that crossed his path; and the very suspicion of such a crime was sufficient to account for the warning to flit that speedily followed. My father was silently sorrowful, but my mother lamented her exile from the bonny Woodhall in verse. My father obtained a shelter for his family in the Clauchan of Tongland on the bank of the Dee, two miles above Kirkcudbright, which continued to be our home till the last of us took wing in search of a livelihood. My mother died when I was ten years old—the eldest of four, the youngest under one year. My elder brothers were then earning their living away from home and I had on the sad event to take up the rôle of cook and housekeeper. I had learned to read after a fashion in a dame's school in Clauchan—an accomplishment I did not allow to rust. Before I was ten years I could have passed a creditable examination in Bible History. My father had some few volumes of devotional and controversial Divinity that were not much to my taste; but I read Buchanan's History of Scotland and Knox's of the Reformation with keen interest and every other story I could borrow from any of the neighbours. In my twelfth year I was sent to the parish school with more knowledge than most boys of my age, but a sad deficiency in my pronunciation of polysyllables. At first my reading and spelling took me to the bottom of my class, but the explanation carried me as regularly to the top and at the end of three months, I stayed there and was rapidly promoted till in little more than a year I had reached the highest taught in the institution. I had then finally to leave school and take up farm work for a time.

At that time the "Tally" business in England absorbed a good many young men of my class who found themselves superfluous commodities at home. Tally men are a sort of commercial travellers on a small scale: a man that had done well in the business got lads from Scotland and sometimes employed as many as five or six, each of whom had two-week rounds that brought them to the same place once a fortnight. They had to enquire into the means and characters of the dwellers within their sphere of action; select those whom they thought it safe to trust; and from such they must endeavour to obtain orders by forcing their way into houses, entertaining the inmates with small talk, displaying their samples, expatiting on the quality of the goods, and the advantage of paying in fortnightly instalments. To perform their duties efficiently they should have dauntless audacity, ready tact and unfailing fluency of speech. It was only by experience that I discovered my own deficiency of every one of those qualities; so I turned out a dead failure and returned home to farm work. My next move was to a nursery where I learned something of the propagation and culture of plants from the daisy to the oak, though not all that lies between them. My next move was into the service of a maiden lady—one of the Maitlands of Barcaple, an ancient family of landed gentry in Tongland—who was building a villa in the suburbs of Kirkcudbright. My work there was to lay out, plant and tend the garden and the four acres of land with fences and the etceteras thereanent. After nearly two years in this post, the lady's brother, the laird of Barcaple and a Mincing Lane broker offered to send me out to Ceylon to assist in forming coffee estates. I gladly accepted the offer as I had long desired to emigrate to Australia and was not then aware that life was very different in Ceylon. I was perfectly satisfied with his terms, viz. a free passage, board and lodging for three years, and a salary of £30, £40 and £50 for the same period.

Mr. Maitland kept me in London for two months by the way, I suppose for the purpose of studying my

character and capacity and to rub off some of my rusticity. He sent me on messages about the City and suburbs; he made me write to his dictation long letters to his Ceylon attorney and he directed me to write to his sister my impressions of the grsat City. He took advantage of my ignorance to send ms on errands to make foolish enquiries and thereby took me in on several occasions that made me blush for my stupidity.

At last, I joined

THE BARK "IRIS" (CAPT. LINTON),

at Gravesend. My fellow-passengers were Dr. Kelson, Mr. and Mrs. Dawson, of the Baptist Mission, Miss Tweedy, Alexander Davidson, Matthew Lamb and Thomas Mortimer, a Jaffna Tamil, whom the C.M.S. had sent home as a specimen of their success in educating the natives. I alone am left of that set of fellow-creatures.

We reached Colombo on 17th February, 1841, five months minus six days out. A steady head wind kept us in the Channel three weeks and things were not much better in the Bay: in fact all the passengers were laid up with sea sickness till we were in sight of Madeira, where we had tbree days on shore, while wine was being taken in for the East India voyage. We were becalmed for nine days within 400 miles of Ceylon, which was ended by a squall that caused some havoc in the rigging and snapped the main yard.

I had to remain in Colombo for three days before I conld get a seat in the coach. When I arrived in Kandy, the welcome of my P.D. seemed to me not quite so cordial as I thought I had a right to expect. Well, neither in dress nor manner did I reach his ideal of what his coadjutor should be: so he decided that I should go at once to the fittest place for such a rustic boor. After one day in Kandy we started for the spot where ths estate was to be. We went to Gampola on horseback and then on foot by the little frequented native track across paddy fields up and down rocky ravines over tracts of low jungle. Our quarters for the night was a large ambalam about a mile beyond what is now

THE TOWN OF NAWALAPITIYA,

which then was a single hut inhabited by an old Moorman. On reaching our lodgings I was fairly done up and at once lay down on one of the mud-built bunks. Just off a long voyage and unsuitably dressed for a jungle journey, I was in bad form for such work in a blazing hot tropical day. I could eat nothing, but lay in there in pain and in the full belief that my first night in the jungle was to be my last. Towards the middle of the night, however, nature came to my relief and when daylight came I was fresh and empty—much fitter for the second day's journey than the first. Passing the Mahawille and the Masnawatte gangas by fords and climbing up a forest-clad hill, at the summit a view was obtained of the country destined to be the scene of my labours for fifteen years. Thousands of acres of patana lay before us sending spurs far up the forest-covered mountains: on the south lay the Galboda ridge, on the west Raxawa and Unulagala and on the east the Ritigala range with the Mastnawatte-ganga in the bottom of the vale. Tbe top of the most distant patana to the left was pointed out as our destination; and, after a short rest, we started afresh to wade through some two miles of long grass and in descending to the bottom of the valley ws forded several streams that formed the main river lower down. From the last stream we had to climb a steep patana for a thousand feet. The settlement was not visible from below being situate in an inward dip of the land and not to be seen till within a few yards. I sat down on the grass and stared at the scene before me. There were three separate huts thatched with patana grass—two of them 10 x 20 feet and one 15 x 40—one of ths smaller ones had the walls roughly finished and the other two had the wattle up, but were wating for the daub. Writing home, I compared them to big bird cages. There were three inhabitants in this dreary settlement—a Tamil, a Sinhalese and an old Kaffir: the first was the servant, the second appeared to have no duty—he had been engaged as timekeeper and store-man, but he had nothing to do in either capacity. As for the Kaffir he was past his working days. The Jaffna Tamil was tbe only one of the three that knew English. The furnishing was in harmony with the style of architecture—four posts stuck in the ground supported half-a-dozen small trees adzed square by way of table; on each side of this structure was a concern constructed of "warichchis" supported in the same way as the table, covered with dry grass with mats over it: these were seats by day and beds by night. These structures were put up at one end of the larger unfinished room. As the cooly had arrived with my carpet bag I was glad to get a wash and a change, after which I ate a hearty breakfast of better viands than I expected in such a desolate place. My P. D. stayed over the next day and showed me the coffee nursery the only other work that had been done, and gave me directions to select a site and build a set of cooly lines very soon as he expected to send me a supply of labour and with the parting advice to keep George, his Tamil servant, in good humour, as my comfort would entirely depend on him, I saw no more of him for six weeks and not a cooly arrived to do any work whatever. With the aid of the old Kaffir, I mudded up the walls of the smaller hut and made myself as comfortable as circumstances would admit. Towards the end of the second month of my solitary idle life, gangs of coolies began to arrive; but they did not stop long—a week to ten days being about the time they stayed. And fully six months elapsed before I had no intervals of enforced idleness from want of labour. Meantime Mr. Wise's visits were few, short and far between. He lived in Kandy in a house he rented in company with Wilson Ritchie's Visting Agent and he never spent a whole week on the estate all the four years I was on it, though on nearly every visit he announced that he had come to stay. That first year of planting life was the most miserable of my life, but I made no complaint and set myself to learn my new work with all my might and found out how to do things without a teacher or exemplar. Wise went a good deal about, as he said, to gain experience from seeing other people's work; but before a year had come and gone, I was aware that I knew much more of my business than he did.

It was only

IN THE SECOND YEAR

that I got about fifty acres ready for planting and the following year something over twice as much was ready for planting. About this time I had a bout of ill-health and had to ask for aid in the work. As I fell ill a second assistant had just arrived but he at first could be of little use. I had consulted Dr. Reed, and he advised a change. "Go to Kandy," he said, "eat beefsteak and drink porter: you are suffering from hard work and low living." By the by the low living was no choice of mine, but Wise having exempted his servant from my authority, he fed me on rice and "karawadu" and yet his master complained to me of the housekeeping which roused me to some self-assertion. I said that he charged the estate £4 a month, for my board and wheresoever the expense came in my food had never cost him one-fourth of his charge and that his servant and the clan he had gathered about him lived much better than I did. I was then entrusted with the supplies and within a month George and his clan were all off the place, but the evil to my health was already done. On my application for leave, Wise brought an old soldier with twelve months' experience to act during my absence. He did not invite me to take up my quarters in his house, but I had to go to an hotel. In three weeks I reported myself well enough to return to work. But to my no small surprise, I was directed to place myself under the orders of Mr. Freeman on my return. My first impulse was to decline to return at all; but then I considered that there was still six months of my original engagement to run and in good faith I must fulfil my contract, though as I then knew it was not legally binding and in the meantime I could look out for other employment; so I returned to find

that much of my system of working had been suspended and new rules established. The monthly weeding was stopped. The coolies were given a half-holiday on Saturdays on full pay and other things changed that with some trouble I had established. I never knew by what representations Wise endeavoured to justify this action to the proprietor, but by return mail it was found that they had not served their ends. The orders were :—" Discharge the new man; replace William in his former position. Let him build a suitable house for himself near his work and let his salary be for the present £10 a month "—a case of Haman and Mordecai.

Captain Dalrymple—Sir James Elphinstone—had visited Ceylon about the end of 1842. Though not a blood relation he was a family connection of Mr. Maitland and an intimate friend, and visiting the estate never doubted that he would not find the responsible manager in residence. He did not express his thoughts to me when he learned that the manager did not reside on the property and only visited it occasionally. He made it his business to enquire into Mr. Wise's character and it appeared that he had achieved a notable measure of notoriety. He further learned that Mr. Wise was a leader of the fastest set of young men that frequented the planting capital and all this he wrote to his friend and how much more I know not, only as I afterwards learned his remarks inferred that the person he found on the estate could not know much about planting, so that I had failed to make a favourable impression on the visitor. After this the rôle of keeping Mr. Maitland informed of the conduct of his employes was taken up by another correspondent; and just as Wise was adversely criticised, I was commended: hence the slap in the face the former received in his effort to get rid of me.

Still Mr. Maitland was reluctant to give up the young man that had been taken up at twelve years of age, educated at his cost and trained to business in his own office. He was the son of an attendant where Mr. Maitland kept his riding horse and the youngster was often trusted to bring him the animal when he wished to ride in the Park or elsewhere. Pleased with the intelligence and readiness of the boy, he took him as his own personal attendant, then sent to school where he made rapid progress and at sixteen he wrote a fine clerkly hand and was a first-rate arithmetician. He was then taken into the office and at eighteen was principal bookkeeper of the firm. At twenty he was sent to Bombay to study Indian commerce in the house of Ritchie, Stewart & Co. All this time he had behaved entirely to his patron's satisfaction. During his residence in Bombay the mercantile community of that city caught

THE COFFEE MANIA

and nothing was talked about but the fortunes to be made bycoffee in Ceylon. Small blame to a young fellow in the lead of older and more experienced people, enthusiastically writing to his patron in favour of the opinions daily expressed by the leading members of the community in which he moved. Having read those letters in Mincing Lane fifty-nine years ago, I did not detect then the utter absence of established fact and the confidence with which the most extravagant estimates were advanced. I had to learn by experience the fallacy of such, and learned to distrust all speculative estimates of cost and profits. Those letters convinced Mr. Maitland, however, and he instructed Wise to go to Ceylon and secure a suitable tract of land.

He got the best available in Ceylon, which was of small value, where hardly one man knew any thing of soils, climates or how these affected the growth and cropping of the plant. He travelled to many districts and finally settled on Ambagamuwa, induced thereto by the fact that the high-class civil servants, the oldest European residents and consequently the best judges had selected that district as the locality as their own field of enterprise. Finding a suitable tract between the properties of the Government Agent of the Western and Central Provinces, he applied for it and cleared the boundaries of 1,000 acres. He had really worked hard for the first six months and endured a good deal of hardship; but after getting the land surveyed, he set about indemnifying himself for his privations. He set himself down in Kandy and cultivated the acquaintance of a rather wild set of youths who paid frequent visits on the spree to Kandy; and up to the time of my arrival, no steps had been taken to begin work beyond what I have named. The habits he contracted at that period stuck to him; company was a ruin to his life and the monotony and solitude of the estate, as it was in those days, death: he had no resources within his reach, he read no books, he attached himself to no science, he studied no art and a practical planter he never conld have become.

From the communications received about his attorney's mode of life, Mr. Maitland in all probability recognised the fact that he was not the stuff that planters should be made of. He therefore arranged to give him an employment somewhat akin to that to which he had brought him up. This idea was the management of a

GENERAL PLANTERS' STORE

in Kandy which was duly established and large consignments of goods and two assistants were sent out. At that time there was room for such an institution, but it did not thrive in Wise's hands and within a year it went into other hands at a heavy loss and was for many years carried on by James Affleck.

Wise, then a married man, came up with his wife and her mother, as he said to settle down for good on the estate. He stayed a fortnight.

The next news from home was that Mr. Maitland had decided on a visit to Ceylon and named the day he would leave England. It was, however, a month later when he started and he went first to Bombay, where he stayed for two months before coming down to Ceylon. I had been twelve months in a house of my own and managed the field work with hardly any interference. There was then two other assistants; they never did any field work. One being a house carpenter and the other a millwright, they found the small amount of work that satisfied them in the bungalow, and a shed by way of coffee store and a couple of rooms under the same roof for their own residence.

At length the day was named on which Mr. Maitland was to leave Bombay for Ceylon, but we had had two months to think over what would happen; and each had his own thoughts, but kept his own counsel. In my case it was the unexpected that came to pass. Wise came up with his family really to stay that time. Paterson was awaiting events in the hope that they would turn to his advantage and I was for good reasons easy in mind as to the course things might take.

The last day of September, 1845, came. That day I had gathered

THE FIRST COFFEE THE ESTATE YIELDED,

and taken it into the store where I found all my three fellow-employes. They had been erecting the store and preparing it for work. I suppose the sneer with which I enquired if they had never seen a pulper at work was visible, but I left them to find out for themselves what was wrong. The next morning being Sunday, after giving the coolies their chits, I went to the store to see how the pulping had got on. They had at once discovered that as they had placed the pulper, the pulp fell into the steeping tank instead of the coffee: so they had reversed its position, but the upper chop had being fixed too near the cylinder and much of the coffee was injured. Paterson did not accept my advice with a good grace, but he made use of it. On return to my bungalow, I met Wise's horsekeeper who handed a note which I at once opened and read. It was short and to the point. Thus it ran :—

"Having arranged to take the full management of the estate into my own hands from this date, be good

enough to send me the check-roll by bearer, and attend muster tomorrow morning when I will give you your orders for the day, and the charge of a gang. I have also to inform you that your services will not be required after the end of next month."

I promptly replied :—

"I send you the check-roll as ordered. I will leave the estate tomorrow."

Among other gentlemen that had visited the estate and been shown round it by me were two of the ablest and most respected members of the planting body in the persons of Captain Jolly and Mr. George Pride, from each of whom I had received a nearly identical communication, namely, to let them know if I found occasion to change my service. I at once wrote to Capt. Jolly that I was now at liberty to accept an engagement. He answered by requesting me to visit him at his residence in Katugastota. I walked to Kandy the next day and paid my visit the following morning. I found with him Mr. Fairey, one of his partners*, and they had already arranged to commence operations on land adjoining Barcaple and running high up on the Ritigala mountain and I was at once appointed to the operative part of the business on a salary R50 higher than I had in my former situation. Thus a second time the enmity of Wise had brought me advancement and no good to himself.

It was nearly two months after my dismissal that Mr. Maitland arrived. What passed between him and Wise was never revealed; but the latter departed bag and baggage within a week in company with a little rascal known as C—— W ——. He set up as a commission agent, but the firm did not prosper. Paterson was put in charge of the estate—a post he held for many years. Mr. Maitland made the estate his headquarters and lived on familiar terms with all classes in the district. At first I did not venture to call on him not being very sure of a welcome; but he came to see me and talked to me as if nothing had come between us since the old days in Mincing Lane, but for some time the name of Wise was not mentioned in our conversations. But at length he told me that he had received reports about both Wise and myself from several parties in the Island, and he thought they gave me more credit than was due to me. I replied that I could have no opinion as to what was written about either of us by outsiders; and though my position was never a pleasant one, but now that I was safely out of it, I would never say one word either in defence or accusation.

The superintendent of a neighbouring estate had built a grand bungalow and issued invitations to a great

HOUSE-WARMING FEAST

on Christmas Day. Mr. Maitland asked Paterson if he was going. He replied that he had not been asked and he believed that only resident proprietors or those who might become so were invited.

"Well, then", he said, "we will have a rival feast on the same day, and I doubt not ours will be the merriest of the two. Send invitations to all the Scottish superintendents and assistants in the neighbourhood."

Nine of us sat down to that dinner and a very pleasant night we had, as I well remember, and first-rate company our host proved himself. But the thing that amused us was a capital imitation of the voice and manner of host of the rival feast then going forward on the other side of the valley. He had only been in his company for half-an-hour, but he had caught the man's big boastful voice and loud self-glorification exactly and reproduced him in all his ignorance and vulgarity very much to the delight of his guests, to every one of whom he had given deep offence by his impudent self-assertion.

Mr. Maitland's health began to fail before he had been many months in the Island, but he held on till he became really very ill: so he left the estate one morning and rode to Gampola where he took the coach to Kandy. Mr. Albrecht of Ing-oya was his fellow passenger: he too was very ill and died at Kandy. The same night Mr. Maitland took an extra coach to Colombo where he arrived at daylight next morning, only to die during the same evening.

* After whom of course "Faireyland" was called.—ED.

He had parted finally with Wise, but had neglected to recall his power of attorney: so he returned and took possession of the estate. He too was doomed. Never of a robust constitution—some years of reckless dissipation had done its work. Paterson who had toadied him in the days of his power, now set him at naught having reached the position he had aimed at from the first and knew that the restored reign would be a short one. No one in Ceylon had suspected that Mr. Maitland's affairs were left in an unsatisfactory state; but there appeared to be such a state of things that only the Court of Chancery could disentangle. Mr. David Wilson was appointed local administrator and his first act was to dismiss Wise who then in an almost moribund state, got a second class passage for himself and his family. He died at sea and his mother-in-law died two days after. Mr. Maitland's hereditary estate was sold for the benefit of the creditors but it did not go out, of the family being purchased by an uncle who had made a fortune in New York and the coffee estate was ultimately bought by Sir James Elphinstone. Thus the coffee enterprise first ruined and then killed the two men that brought me into contact with it.

CAPTAIN JOLLY,

under whom I served for fourteen years, was a gentleman by birth and breeding. He entered the Mercantile Marine Service of the East India Company and was first Lieutenant to Captain Dalrymple, when the Company sold their fleet, after which he commanded one of the ships under the new owners in the same trade, which he gave up for coffee planting in connection with Macvicar, Burn & Co., of Bombay. He purchased land in various districts and opened four estates—one in Hantane, one in Matale, one in upper, and one in lower, Bulatgama. The two first were successes: the two latter failures from natural causes of which we had no previous knowledge and that were beyond our control. I did the best work that was in me. In two years

300 ACRES WERE PLANTED

and weeded monthly. Hopes ran high till the period of crop yielding arrived when they began to fall year by year till they reached zero. When it became certain that with the most economical expenditure the place would barely pay, its way, I had several reasons to desire a change. I had got no advance of salary for seven years, and had not the face to ask for it under the circumstances. I was confident that in a suitable climate my experience would bring better results for myself as well as my employers. I had married in 1851 a young girl belonging to an old Dutch family, who quickly lost her health in that cold rainy climate and had to go to the lowcountry always—after a few months on the estate. What with the cost of travelling in those days and our separate living on such occasions, I found my income hardly equal to my necessary expenses. I therefore applied to Captain Jolly then a partner in the firm of George Wall & Co., to give me an appointment in another district. The only one open was Yakdessa, but as it was then a shuck place and quite as rainy as Atherton, I declined it. In the middle of January 1855, however, I received an order to give over charge of Atherton to a young Eurasian in his employ and attend him in Kandy at once. My family was down in Kalutara at that time, so that I was without encumbrance and started next day. It appeared that the superintendent of Poengalla in Matale East had been drunk in a neighbour's bungalow for three weeks in the middle of crop and everything on the estate was in the utmost disorder. In the course of my 14 years of planting, I had seen neglected and mismanaged places, but

POENGALLA CROWNED ALL.

The soil was all that could be wished and the coffee was eleven years old on the oldest fields: not only had it made no return to the absent proprietor but he had advanced money to carry it on every year. The agents

Keir, Dundas & Co., finally offered to purchase it at about one fourth of what it had cost. He would not sell but he changed his agents. The first superintendent appointed by Captain Jolly began vigorously, but soon broke down and took to drink. I found the whole crop, 5,000 bushels of parchment, in the store; the weeds were in many places higher than the coffee; the older fields had been once pruned by the process of cutting the primaries within six inches from the stem and the primaries had become like broom besoms, the jungle had been allowed to encroach all round the borders and a field that had first given its maiden crop had suckers six feet high. Finally the cooly force was refractory and insubordinate.

My first report was a very gloomy one. I estimated that to get the place into anything like order £500 more than the previous average would have to be expended in the first year and then no great increase of crop could be expected in the current year. In answer I was authorised to spend whatever I thought necessary. Though I expected much from a thorough weeding and pruning, the result left my hopes far behind—masses of blossom came out on the leafless wood and so much young wood rushed out that there was very heavy work in handling and selecting the shoots that were to be left for the following year's crop. The crop of that first year was

ELEVEN CWT. PER ACRE

and a good deal was lost from insufficient labour and from heaviest plucking occurring in latest months of the year. I expected to get some personal advantage from the result of my first year's operations; but as it was not offered it, I had to remind Captain Jolly that I had got no increment to my salary for eight years, while others many years my juniors in the service were higher paid than I was.

My request was conceded as I thought not with the best grace; and I found my resources hardly equal to the calls on them and began to think very seriously whether I should not seek lowcountry employment where my family could live at less than one half of what I was spending. I began therefore to make enquiries with that view and ultimately engaged with Mr. Robert Dawson to take charge of Ratmalane,

A CINNAMON AND COCONUT ESTATE,

eight miles from Colombo, at a very much lower salary than that I surrendered. I knew, of course, nothing about the productions of the place; but I trusted commonsense and earnest observation of facts would soon enable me to acquit myself creditably.

The first thing that I had to apply myself to was the study of the Kandapanuwa (coconut weevil) which threatened utter ruin to the coconut fields. By the end of a month I had arrived at a decided opinion and mode of treatment which put a full stop to that plague in the course of three months. The failure of Mr. Dawson in less than two years closed my connection with Ratmalana. I was introduced to Mr. E. J. Darley and highly recommended and he promised me the first opening that occurred under the agency of his firm and in the meantime I took service under Mr. David Wilson in Uplands Mills of which I was sufficiently tired when at the end of twelve months, Mr. Darley offered me charge of the two estates of

KIMBULAPITIYA AND ULUAMBALAMA, KADIRANA,

which I gladly accepted. After I had carefully studied the conditions, I sent in a report in which I recommended many changes and improvements. Mr. Darley did not as a rule approve of innovations and vetoed the most of my proposals. I however returned to the charge and gained several points. For instance I had proposed to sell off one half of the cattle on Uluambalama: he wrote "the more cattle the more manure." I ruthlessly attacked that position and so clearly proved him in the wrong, that he yielded the point and bade me do my will. Some other points I gained, but much was rejected, so that I was at first a good deal hampered but everything comes to the patient waiter. Being forbidden to increase the cost of the cinnamon cultivation, I went in for improving the system of manuring the coconuts where I was left with a freer hand.

The coconuts were about 20 years old when I took charge and ought to have been in full bearing, but the yield was poor on the light sandy soil: little more than 1,000 per acre and with only the manure I could make on the place, improvement was rather slow in the early years of my incumbency, but from the time I was allowed to add three tons of bonedust annually, the increments became larger. The first year I had 230,000 nuts; the twelfth 590,000 and would have had much more if I had been allowed more manure from outside the premises.

The health of my family continued to give me much anxiety: my wife died in 1863, having been unable to leave her room for two years.

In 1866 I entered into a second matrimonial arrangement which was very satisfactory while it continued, which was for less than three years. After my wife's death I fell into bad health and in 1891 had to take a change to save my life: so I got a twelvemonths' leave and went home. I had to return before the year was out, because I found that my *locum tenens* was very vigorously endeavouring to obtain the permanent appointment and on my return I found that he had succeeded in the case of one of the three properties left in his charge, the agency of which had been given up by Darley, Butler & Co. The other two, both belonging to the same person, were restored to me with *carte blanche* as to manuring coconuts and improving the cinnamon cultivation. In 1873, the proprietor died and by his will all his Ceylon properties were to be sold off at once which was quickly accomplished—in the case of Ulnambalama much below its value. In those days there were few Europeans engaged in coconut planting and there was no employment for me in that line: so I retired to a small coconut property I had acquired in

THE MAHAOYA VALLEY

some years previous. As this place was very unhealthy and I suffered from fever all the time I was there, I accepted the offer of the proprietor of Ratmalana to again take charge of that estate and in 1878 I sold my Batakanda property and began to open a Liberian coffee and cacao concern on another land I owned in the Mahaoya valley. In 1879 I left Ratmalana and engaged with Mr. A. M. Ferguson to open Eilandhu in the Henaratgoda district where I remained for seven years. Liberian coffee and cacao failed there as elsewhere in the lowcountry, and the place was planted with tea. In my own case I dropped the greater part of my capital in my Liberian coffee and cacao experiments and in 1886 settled down on my own property to work it up in coconuts in which I fairly succeeded, but as I ran short of funds in 1891, I sold out all my belongings in the Mahaoya valley and remained at large for two years when my son who had been for seven years assistant on a tea estate, lost his employment and I thought of investing my funds in tea to give him work. I had lent out a part of my money on mortgage, but had the misfortunes to have seven thousand rupees in the new O.B.C. when it failed, so I hastened to invest anew what remained. The bargain I ultimately made was the worst of my many bad ones in the course my life; but the salary allowed for management sufficed for economical living though no profits have accrued to the partners in the six years that have passed since I assumed charge. I have however enjoyed better health in the Ratnapura district than in any of my former localities; but old age is telling on both mental and bodily power.

Writing on 3rd February, 1899, Mr. Lamont reported:—"I am well in health, but old age has told in dull senses and unsteady step, &c. If I live for ten days more I will enter my 82nd year." The Ambagamuwa pioneer is therefore now well on in his 83rd year, and that his physical and more especially

his mental force has not abated, is shown by the above "autobiographic" notes written at our request only a few weeks ago to accompany his old-age portrait, photographed and etched by Messrs. W. L. H. Skeen & Co. in June last. To the veteran of Kosgalla, Ratnapura, we can only now wish a quiet time for undisturbed reflection and meditation as well as for the daily spell of work still required of him.

With W. B. Lamont it has eminently been a case of *laborare est orare*; and we may say :—

At eventide let there be light, and—peace.

FRUITS SUITABLE FOR THE LOW-COUNTRY AND FOR MODERATE ELEVATIONS IN CEYLON.

(From Circular Royal Botanic Gardens, Ceylon, Series 1.—No. 15, June 1899.)

The following pages contain a brief account of tropical fruits (mostly cultivated), with general directions for their treatment. They may be obtained (usually in bamboo-pots) in small quantities from the Royal Botanic Gardens, Peradeniya, on prepayment of cost; plants are delivered at the gardens or at Peradeniya railway station.

Seeds where mentioned can only be supplied when in season.

General Directions.

Planting.—No arbitrary rules for planting can be laid down, as so much depends on climate, locality, and soil. Wet weather should however be always selected for the work; otherwise the late afternoon should be chosen in preference to the forenoon. The ground should be prepared and holes made before the plants are removed from their pots or nursery beds, so that no unnecessary delay may occur in planting them out. It is even preferable to have the holes opened some months previous to planting, as the soil thus exposed to the action of the air will be rendered more nutritive. For dimensions of hole to be dug and distances to plant apart, the character of the soil and the proportionate size of the plant when full, grown must be respectively considered, larger holes being necessary where the soil is poor and gravelly. For trees and shrubs generally, and in moderately good soil, holes about 2 ft. deep and 3 ft. in diameter may be recommended. Large trees, such as Durian, Sandoricum, Rambutan, &c., should be planted 40 to 50 ft. apart.

Soil and Manure.—Unless the soil is already of the desired condition, it will be improved by the addition of old manure, chopped decayed turf, marl, and old mortar rubbish, according to the need of the plants, a small proportion of sand being often necessary for giving porosity. Occasional surface dressings of a prepared compost and applications of liquid manure are most beneficial. Fresh manure of any kind should not be placed next the roots of a plant.

Shading and Watering.—These should have special attention, as the insufficiency or overbundance of either at first may cause irreparable damage to the plants. In the case of plants planted at considerable distances apart, shade by means of fast growing intercrops, such as Plantains, may be practicable; shelter from strong winds would also be thus afforded. All seed-pans, pots, boxes, or beds should be kept shaded, and only sufficiently moist to enable the seeds to germinate. After seedlings appear above ground less shade and more moisture will be required. If the weather be dry, daily watering of plants planted out will be necessary until they are well established.

Pruning.—Timely thinning out of superfluous, decayed, or weakly growths will greatly assist in the perfect development and productiveness of a plant. Pruning back the ends of shoots will conduce to the formation of branches and to a spreading habit.

Weeding.—The ground should be kept free of weeds until at least the plants are sufficiently strong to supersede them. Frequent forking up for stirring of the surface soil is eminently conducive to the well-being of plants. The encroahment of roots from surrounding trees, which rapidly impoverish the soil, may be checked by cutting trenches at suitable distances round the plants.

Propagation.—The various forms of grafting, budding, and layering, as well as propagation by cuttings, suckers, roots, or leaves, are the surest means of raising plants true to their kinds, the newly-made plant being in each case merely a counterpart of the parent plant. Plants raised from seed, however, make more shapely, finer, and generally healthier trees, shrubs, &c.; but they are liable to variation from the parent stock according as the flowers of the latter are disposed to be affected by foreign pollen in their fertilization. Only the best seeds from mature and perfect fruits should be selected for sowing, and they should be sown of course before their germinative powers become impaired or lost. Seeds generally require to be sown in a light sandy soil, which should be kept only moderately moist, and as a rule they may have a covering of soil equal to their own thickness. Where practicable, it is advisable to have plants transplanted out into beds, or preferably into bamboo-pots, plant-baskets, or ordinary earthenware pots, and tended for some time previous to planting them out where intended to grow.

FRUIT PLANTS

FOR SALE AT THE ROYAL BOTANIC GARDENS, PERADENIYA.

Abbreviations: *S.* = Sinhalese; *T.* = Tamil; Prop. = Propagation.

Aberia Gardneri.—Ket-embilla, *S.* and *T.*

A small shrubby tree of the Uguressa family endemic in Ceylon. The pale, purple, velvety edible fruit is of the size, form, and consistency of a gooseberry, with a pleasant acid taste. It makes excellent tarts and jam. Season, August to September. Thrives at medium altitudes, in light loamy soil. Prop. by seed. Sown in pots or boxes under cover.

Price: Small plants 25 cents each.

Achras Sapota.—Sapodilla-plum; Bully-tree; Naseberry; Rata-mi, *S.*; Shimai-eluppai, *T.*

A small symmetrical tree with dark green shining leaves, native of Tropical America. Fruit globular, about the size of a plant, with dark brown tender rind. When quite ripe it is considered of the most luscious of tropical fruits, the pulp being sweet and refreshing, and somewhat of the consistency of a pear. In India it is often sold under the name of Mangoesteen. Season, November to February. The tree furnishes an elastic gum used in medicine, and the bark is considered to have febrifugal properties. Thrives in the low-country and up to 1,000 ft., in deep and well-drained soil. Prop. by seed and layering. Seeds similar to those of Soursop. Sow in nursery beds.

Price: Plants 25 cents each; seeds 25 cents per packet.

Ægle Marmelos.—Bengal-quince; Bael-fruit; Baeli, *S.*; Vilvom, *T.*

A small spiny tree of the Orange family, considered a native of India. The fruit is comparable in form to a large orange, with a hard green shell, the interior containing a mass of doughy aromatic pulp, intermingled with which is a limpid glutinous substance, which some relish and consider of an agreeable flavour. It is renowned for its medicinal properties, being used especially in native medicine as a specific for dysentery and fever. Season, chiefly February to April. Low-country and medium altitudes. Prop. by seed. Sow in open beds.

Price: Plants 20 cents each; seeds 25 cents per packet.

Anacardium occidentale.—Cashewnut; Caju-gaha, *S.*; Mundiri-maram, *T.*

A bushy tree originally introduced from Tropical America; height about 30 ft. Its well-known fruit consists of two distinct parts, viz., (1) the swollen pear-shaped sta ked (cashew-apple), which, being juicy and astringently acid, is used in preserves and made into a wine; and (2) the kidney-shaped brown nut at the extremity. The edible kernel (seed) of the latter is of an agreeable nutty taste, especially when roasted; it is in demand in Europe for confectionary and flavouring purposes. The crusted shell is acrid add poisonous. All parts of the fruit of various uses in medicines. Season, April and May. The tree yields a gum said to be obnoxious to insects, which is recommended for bookbinding. The juice obtained from incisions of the bark forms an indelible ink. Thrives best in the low-country up to 1,500 ft. Adapted for moderately dry districts. Prop. by seed, layering, and cuttings.

Price: Plants 20 cents each; seeds 35 cents per 100.

Ananas sativa.—Pineapple; Annasi, *S.*; Anasshi-pallam, *T.*

Generally supposed to be the most delicious fruit in the world. The leaves afford a fine and durable fibre of commercial importance. Will thrive from sea-level to medium altitudes in moist and dry districts. Rich loamy soil, leaf mould and well-rotted manure; well-drained and sunny situation. Plant about 2 ft. apart, in row 3 ft. from each other. Prop. by suckers and "crowns" (fruit shoots).

"Kew pine" (Smooth Cayenne).—The best variety for general cultivation, being a robust grower usually bearing in the low-country in six months from time of planting suckers. Fruit grows to a large size, sometimes weighing over 20 lb. (exceeding the record for other countries); is very juicy and of a delicious flavour. Leaves not spiny.

Price: Suckers Re. 1·50 per dozen.

"Mauritius."—Fruit moderately large, yellow, and well-flavoured. Leaves not spiny.

Price: Suckers Re 1·20 per dozen.

"Gal-annasi."—Similar to the latter in appearance and flavour.

Price: Suckers Re. 1·20 per dozen.

Anona muricata.—Soursop. Katu-anoda, *S.*; Seetha, *T.*

A low fast-growing tree with fragrant laurel-like leaves, introduced from the West Indies. Fruit large (2 to 3½ lb.), green more or less oblong often kidney-shaped, covered with soft green pickles. It ranks among the best dessert fruits of the Tropics, the soft white luscious pulp being agreeable and refreshing, with a strawberry flavour. A grateful cooling drink is also made from it. Season, June to October. Low-country and up to 3,500 ft. Deep loamy soil. Prop. by seeds and layering. Sow seeds in prepared nursery beds.

Price: Plants 20 cents each; seeds 50 cents per 100.

Anona reticulata.—Bullock's heart; Anoda, *S.*; Ramsita, *T.*

A small bushy tree of Tropical America and West Indies. The name "bullock's heart" signifies the shape and size of the fruit, which is edible, the custard like granular pulp being of a rather agreeable flavour. Seasons, March to April and October to November. The leaves and young twigs are said to be used for tanning. Altitude and soil same as for latter species. Prop. by seeds sown in pots or open ground, or by cuttings planted in rainy weather.

Price: Seedling plants 25 cents each.

Averrhoa Bilimbi.—Cucumber tree; Blimbing; Biling, *S.*; Bilim-kai, *T.*

A fine-foliaged dwarfish tree, long cultivated in the Eastern Tropics for fruits. Fruits about 3 in. long, resembling small cucumbers in form, produced in clusters on the trunk, are valued for making pickles, preserves, jam, tarts, and cooling drinks; they are also specially esteemed as an ingredient in curries. The flowers are sometimes made into preserves Low and medium altitudes. Rich, friable, and well-drained soil decayed manure, leaf-mould, &c. Prop. by seeds layering. Seeds small, sow in pots, pans, or boxes under cover.

Price: Plants 25 cents each.

Averrhoa Carambola.—Karambola-tree; Kamaranga, *S.*; Tamarata, *T.*

A tree similar to the latter, but more ornamented in habits, being also in cultivation in the East for a long period. Fruit oblong, 3 to 5 in. long, semi transparent, amber-coloured, and produced on the branches its five peculiar wings or ridges give it a handsome appearance. The pulp is acid and very juicy, but, though used in some similar ways, is not so highly valued for culinary purpose as the fruit of its ally already described. The juice of the fruit removes stains from linen, and is good for burnishing brass, &c. It is also said to be used as a mordant in dyeing. Adapted for same elevations, soil, and method of propagation as the last described species.

Price: Plants 25 cents each; seeds 25 cents per packet.

Canarium commune.—Java almond; Rata-kekuna, *S.* Myrrh family. A large handsome Malayan tree with generally a remarkable buttressed trunk, cultivated for the sake of its plum-like fruits produced in abundance from April to December. The hard three-cornered kernel contains an edible substance similar in flavour to sweet almonds; it yields by expression an oil used for burning in lamps and for cooking purposes. A desirable tree for planting in avenues, &c. Hot and moist districts up to about 1,500 ft. elevation. Deep and fairly well-drained soil. Plants are raised readily from seed. Sow seeds in nursery beds, and keep wet and shaded.

Price: Plants 20 cents each; seeds 50 cents per 100.

Carican Papaya.—Papaw; Tree-melon; Pepol, *S.*; Pappali, *T.*

Passion-fruit family. A familiar fast-growing, small, branchless tree, with a crown of large palmate leaves, indigenous to Central America and West Indies. Fruit greenish-yellow when ripe; globular or oblong, 10 to 15 in. long; centre hollow, flesh lemon to orange colour; seeds attached to walls of central cavity, plentiful, few, or none, according to variety. A most refreshing and wholesome dessert fruit. It may be made into jam and sauce; unripe, it may be pickled, or boiled and used as a vegetable. The milky juice of the unripe fruit curdles milk like rennet; it is in commercial demand for its peptic properties. The leaves are used for wrapping round fresh meat to render it tender. The tree is of short vitality, deteriorating at the age of five to six years, but bears fruit continuously from the time it is a few months old. Prop. by seeds, which germinate readily. Sow thinly in nursery beds. Low and medium elevations. Rich loose soil, decayed manure, vegetable mould, &c.

"Madagascar."—A large oblong fruit with many seeds.

"Pasba."—Fruit large, globular; seeds few, sometimes none.

"Lanka."—Fruit small, round, very milky.

Price: 20 cents per plant; seeds 25 cents per packet.

Chrysodalanus Icaco.—Coco-plum; Spanish nectarine. A small spreading shrubby tree of the Apple family, native of Tropical America. Its fruit is of the size and appearance of a rather round plum, with a purplish tender rind; it is eaten as dessert, the white pulp adhering to the kernel being of an agreeable taste; it is said to be also largely made into conserves in Cuba, where it thus forms an article of export. Will succeed in low-country and up to 2,000 ft. in light sandy loam. Prop. by seed or cuttings.

Price: Seedlings plants 30 cents each.

Chrysophyllum Cainito.—Star-apple; Rata-lawulu, *S.*; Seemaipala-pallam, *T.*

A fairly large West Indian tree with handsome foliage and habit of growth; leaves dark green above, copper-coloured underneath. The dark brown fruit is round in shape, about 5 in. in circumference, usually 2-seeded, very milky when unripe; the white inner portion of the pulp is edible, it being com-

pared by some with blanc-mange. Up to about 1,500 ft. Deep loamy soil. Prop. by seed. Sow in open and sheltered beds.

Price: Plants 25 cents each.

Chrysophyllum monopyrenum.—Date-plum; Kosetalawulu, *S.;* Seemaipala-pallam, *T.*

A graceful tree of more recent introduction from the West Indies than the preceding species, which it resembles in size and general appearance. As the vernacular names signify, the fruit is smaller in size and form to both a Date fruit and a Jak seed; it has a thin shining purplish black outer skin, and contains but one seed; the milky reddish pulp is edible. Principal season, February to April. Elevation and soil same as for preceding species. Prop. by seed. Sow in pots, &c., under cover or in sheltered beds.

Price: Plants 25 cents each.

Citrus Aurantium.—Sweet-orange; Peni-dhodan, *S.;* Narran-kai, *T.*

Except in the case of choice varieties, plants raised from seed of locally-grown fruit can only be recommended to be planted for local consumption. Imported fine kinds thrive best at medium and fairly high elevations, provided rainfall be not too great. Prop is generally recommended by grafting and budding, the product of plants so raised being naturally less liable to variation in size and quality than that of seedlings. Experienced cultivators maintain, however, that no serious risk of deterioration arises from planting seedlings from carefully selected seed, provided that inferior varieties are not permitted to grow near the seed bearers. Soil. fairly deep and well-drained marly loam; decayed manure, mortar rubbish, &c.

Price: Seedlings from selected locally-grown seed 25 cents each.

Citrus Decumana.—Shaddock; Pumelo; Jambola, *S.;* Jamblica, or Bambalinas, *T.*

A tree of the Orange family, about 30 ft. high, cultivated for its large round fruits, as well as for the beauty of its foliage and flowers. Several varieties are met with, those with green pulp begin usually very sour; while others with reddish pulp have a pleasant sub-acid taste, and are valued for making jams, &c. Seedlings make good grafting stocks for the better kinds of oranges. Low-country up to fairly high elevations. Thrives in any middling good, deep, and well-drained soil. Prop. by seed or by layering.

Price: Seedlings 20 cents each.

Citrus Limetta.—Lime; Dehi, *S.;* Dhaisikei, *T.*

Of this also there are several varieties, some being superior to others as regards size and quality of the fruit. The latter is used for many different culinary and other purposes, especially for flavouring and in the making of cooling drinks, lime-juice of commerce being prepared from it; the rind yields citric aicd. Low and medium altitudes. Rich and well-drained soil. Prop. by seed or by layering.

Price: Seedlings 25 cents each.

Citrus Limonum.—Lemon; Natran, *S.;* Kidanarattankai, *T.*

This small-sized tree is extensively cultivated in Southern Europe and elsewhere, being a native of Northern India, and said to be now naturalized in the West Indies. Lemon fruits are very largely used for flavouring in confectionery, &c. The rind yields a valuable essential oil and citric acid; it is also made largely into candied lemon peel of commerce. Thrives best at medium at fairly high altitudes. Soil similar to that for oranges will answer. Plants are easily raised from seed (pips)

Price: Seedlings plants 25 cents each.

Citrus medica. Citron; Adam's apple; Sidran, *S.;* Nar-attam-palam, *T.*

A spinous, much-branched, small tree indigenous, like the Lemon, to Northern India, and also cultivated for its fruit. The thick rind forms the candied citron peel of commerce; it also affords citron oil and citric acid, used in medicine and perfumery. The white acid pulp of the fruit is made into conserves. Large quantities of special kinds of citrons are said to be grown in parts of Southern Europe to be used solely at certain religious rites of the Jews. Medium and high altitudes. Fairly deep and well-drained soil. Prop. same as Lemon.

Price: Seedlings 25 cents each.

Citrus nobilis.—Mandarin-orange; Jamma-naran, *S.;* Konde-naran, *T.*

A thornless bushy tree, 20 to 25 ft. high with small pointed dark-green leaves. The fruit is of moderate size, and is distinct by its loose brittle rind, readily separating from the pulp, and by a curious button-like projection at the extremity; the rind remains green when ripe. but the pulp is deep orange-red and of delicious flavour. Affects moist localities at medium elevations. Rich and well-drained soil. Prop. by seeds, layering, &c.

Price: Seedling plants 25 cents each.

Clausena Wampi.—Wampee; Rata-karapincha, *S.*

An ornamental an odorous tree of the Orange family, 30 to 35 ft. high, native of China. Its pale yellow berries are edible, being of an aromatic acid taste; they are made into preserves, and used for flavouring meat curries, &c. The fragrant leaves also are a favonrite leaves also are a favourite curry condiment. Humid districts at medium elevations. Fairly deep and porous soil. Prop, by seeds, layering, and cuttings. Sow seed in pots under cover.

Price: Seedling plants 25 cents each.

Cupania edulis.—Akee.

A moderate-sized tree of West Tropical Africa, where its fruit is eaten and relished. The edible portion is the firm fat-like substance (aril) in which the seeds are embedded. It is eaten either raw or cooked, and is considered delicious when fried with butter. The fruit is pear-shaped, about 3 in. long, bright red when ripe, produce in September and October. Seeds jet black, two to three in a fruit. From sea-level to about 1,000 ft. Deep sandy soil. Plants may be raised by layering, but are best from seed.

Price: Seedling plants 25 cents each.

Cynometra cauliflora.—Nam-nam; Leguminous family.

A large shrub of small and much-branched tree, native of India and Malaya. The fruit is a one-seeded and much-wrinkled pod, produced in quantity on the lowermost portions of the branches or trunk the thick fleshy shell is considered palatable and refreshing, and is used for pickling. The large flat seed yields an oil said to be used in medicine. Season, May and June. Low-country and up to about 1,500 ft. Fairly deep loamy soil. Prop. by seeds.

Price: Plants 25 cents each.

Dialium ovoideum.—Velvet tamarind; Gal-siyambala, *S.;* Kalupullium, *T.*

A tall leguminous tree peculiar to Ceylon. From near the ends of the branches hang the clustered dark brown velvety fruit, each of the size and form of a filbert. The thin brittle shell encloses a seed surrounded by a spongy-powdery pulp, which has a pleasant acid taste, and is considered a delicacy and a tonic by the natives; it is also made into a fine chutney. The timber of the tree is dark red handsome and strong. Thrives best in the low-country with a rather dry climate. Light loamy and well-drained soil. Prop. by seeds.

Price: Plants 25 cents each.

Durio zibethinus—Durian.

A very large and handsome pyramidal-shaped tree of the Malayan Archipelago, cultivated for the sake of its world-famed fruit, which, produced on the older branches, is oval-shaped, weighing 5 to 7 lb. and armed with thickly set formidable spiky prickles. This fruit is most highly prized by the Malays, and notwithstanding its offensive odour, Europeans, as well as Sinhalese and Tamils, frequently acquire a special taste and liking for it. The cream-coloured pulp wrapped round the seed is the edible portion. The large seed may be roasted and eaten like chestnuts Pounded into flour, they are said to be made. into vegetable ivory. Season, July and Agust. A desirable tree to plant for scenic effect. Hot and humid districts up to about 1,500 ft. Deep loamy and

well-drained soil. Prop. by seed. Seeds of short vitality; and germinate in seven to eight days.

Price: Plants 25 cents each.

Elæocarpus edulis—A small tree of the Veralu family, native of New Guinea. Its bright red fruit is 3 to 5 sharpangled, 1-seeded, is oval in shape, and nearly 2 in. long. The outer fleshy red portion is of a sweetish bitter taste, and may be made into a savoury jelly or used for pickling. A very ornamental tree both on account of its graceful foliage and handsome fruits. Thrives in shady places with loose rich soil, up to about 2,000 ft. Prop. by seed, layering, and cuttings.

Price: Seedling plants 30 cents each.

Elæocarpus serratus.—Wild olive; Veralu, *S.*: Verali-pallam, *T.*

A handsome and rather small tree indegenous to Ceylon and said to be cultivated in parts of India for the sake of its olive-like fruit. The latter is edible, the fleshy portion surrounding the stone (seed) being sub-acid and palatable. It is excellent for pickling unripe like olives. Season, April and May. Moist districts up to about 2,000 ft. Prop. by seed. Sow in beds, and keep damp and shaded.

Price: Plants 20 cents each.

Eugenia Jambos.—Rose apple; Veli-Jambu, *S.*, Seeni-jambu, *T.*

A medium-size tree of India and Malaya, introduced early into Ceylon. Its symmetrical shape and fine foliage render it a handsome tree. Its fragrant rose-coloured fruit, about the size of a hen's egg, may be used for dessert or made into preserves. Season, chiefly May and June, Low-country and up to about 3,500 ft. Prop. by seeds and layering.

Price: Seedlings 20 cents each.

Eugenia javanica.—Wax jambu; Peni-jambu, *S.*; A Malayan tree, about 30 ft. high of an ornamental habit of growth. Its attractive, shining, white to rose-pink fruits are borne in small hanging clusters, each fruit being about the size of a big strawberry, with the base laterally compressed; the fragrant pulp is edible. Low and medium altitudes. Rich porous soil. Prop. by seeds.

Price:—Plants 20 cents each.

Eugenia malaccensis.—Malay apple; Jambu, *S.*; Peria-jambu, *T.*

A handsome tree of moderate size, combining beauty of foliage, flower and fruit, indigenous to the Malay islands. The pear-shaped white to bright-red fruits, produced abundantly in May and June, have an attractive appearance; the snowy-white pulp is of the consistency of a real apple, which it also simulates in flavour, though less juicy. Low and medium elevations. Fairly deep rich soil, Prop. by seeds. Sow in beds.

Price: Plants 20 cents each; seeds 25 cents per packet.

Eugenia Micheli.—Brazil cherry. Gorka-jambu, *S.*

A small shrubby tree of Brazil. Fruit round and ribbed, rather flattened at the ends, about 1 in. in diameter, polished and bright red, suggesting small tomatos at a distance; pulp agreeably acid in taste, makes excellent jelly, tarts, and preserves. Medium altitudes to about 4,000 ft. Rich sandy and well-drained soil. Prop. by seeds or suckers.

Price: Seedings 25 cents each.

Flacourtia inermis.—Lovi-lovi. Louvi, *S.*

Uguressa family. A handsome Malayan tree, growing to about 30 ft. high. The bright red, cherry-like fruit, produced almost all the year round, is sour in taste, but makes splendid jelly and tarts. Moist low-country and up to about 3,000 ft. Deep rich soil. Prop. by seeds seed small. Sow in boxes, &c., under cover.

Price: Plants 25 cents each; seeds 25 cents per packet.

Garcinia Mangostana.—Mangosteen; Mangos, *S.*; Mangos-kai, *T.*

A moderate-sized conical tree with large leathery leaves, indigenous to the Malay islands. Its globular purplish brown fruit, about the size of an apple, is as famed one of the most delicious fruit of the Tropics. The delicate white melting pulp is sometimes compared in flavour to a combination of strawberries and pineapple. The firm thick rind is said to be used for dyeing, and to yield a valuable tan. The tree bears when seven to nine years old the fruiting season being June to September. Will thrive from sea-level to about 1,500 ft. in humid districts and sheltered localities. Rich loamy and well-drained soil. Prop. by seed, grafting, or layering. Seeds of short vitality. Sow in sandy soil and leaf-mould, in pots, &c., under cover.

Price: Seedling plants 50 cts each.

Garcinia Xanthochymus.—Co hin goraka; Rata-goraka, *S*; Seemai-goraka, *T.*

A symmetrical cone-shaped, bushy tree, growing to 25 or 30 ft. high, with leathery linear-lanceolate leaves, 12 to 16 in. long; native of India and Malaya. The handsome yellow fruit, produced throughout the year, but more abundantly in December and January, is of the form and size of an orange, with a pointed projection at the end, the tender thin skin being smooth and polished; the pulp also is yellow and of an agreeable acid, refreshing taste, being good for making tarts, jam, jelly, &c. Low and medium altitudes. Will only thrive in fairly rich deep soil. Prop. by seeds and layering. Sow seeds in open beds.

Price: Seedling plauts 25 cents ercb.

Hibiscus Sabdariffa.—Rozelle; Ratablincha. *S.*; Pulincha-kira, *T.*

A small annual shrub, cultivated in most warm countries—sometimes as an intercrop with other products—for the sake of its large red fleshy calyces (outer part of flower, which, remaining after the flowers fall away, become enlarged, enclosing the fruit-capsule; they are made into delicious puddings tarts, jam, and jelly, and a refreshing beverge is also prepared from them. The leaves are esteemed by the natives as a vegetable in curries, and the stems afford a quantity of strong fibre. The plants will begin to bear fruit in four to six weeks after planting. Medium and fairly high elevations. Light rich loose soil. Prop. by seed or cuttings. Sow seeds thinly in nursery beds.

Price: Plants Re. 1 per dozen; seeds 25 cents per packet.

Macadamia ternifolia.—Queensland nut.

An Australian tree of comparatively small size, with dense dark green foliage. It bears in May and June edible nuts of the size of marbles which are of an agreeable flavour, being similar to hazel nuts. Will thrive best at medium altitudes. Well-drained light sandy soil. Prop. by seeds (nuts).

Price: Plants 30 cents each.

Mammea americana,—Mammee apple; St. Domingo apricot.

A moderate-seized tree of the Mangosteen and Goraka family, native of Tropical America, where it is said to be much cultivated. The fruit is large and round, brown coloured; 1-seeded, 3½ to 5 in. in diameter, with usually a pointed nipple developed irregularly on any part of the surface. It has two rinds: the outer leathery, the inner tough, yellow, adhearing to the pulp, which is firm and bright yellow; has a singular, though rather pleasant taste, and an aromatic smell. It may be made into jam and preserves, as well as used for dessert. An aromatic liqueur (*Eau de Creole*) and a scent are prepared from the flowers. Moist low-country up to about 1,500 ft. Deep loamy soil. Prop. by seeds.

Price: Re. 1 per plant.

Mangifera indica.—Mango; Amba, *S.*; Manga, *T.*

Generally the Mango thrives from sea-level to about 2,000 ft., in deep and properly drained soil, manuring not being of so much importance as attention to pruning, trenching and forking of the ground. Propagation is best by inarching, a form of grafting, but plants are easily raised from seed, and they generally come thus sufficiently true to kind, provided proper is exercised in their selection. A great many varieties of widely different merit are in cultivation, but the following are worth growing:—

"Bombay;" Bombai, *S.*—A medium-sized yellow fruit, round and flattened in form flesh; oranged-coloured.

Price: Seedlings 25 cents each.

"Parrot-mango;" Gira-amba, *S.*; Kilimooku-manga, *T.* Fruit distinctly beaked, about 3½ in. long, flesh deep oronge, aromatic, and of luscious flavour.

Price: Seedliugs 25 cents each.

"Jaffna;" Jap-pane, *S.*; Yalpanam-manga, *T.* Fruit large, oval-sbaped, green wheu ripe, with delicious soft flesh.

Price: Seedlings 25 cents each.

"Mi-amba" (boney), *S*; Thaina-manga, *T.* A small round fruit, juicy, and of a pleasant tart flavour.

Price: Seedlings 20 cents eacb.

"Nagpur."—Seedlings from a good variety grown in Nagpur.

Price: 25 cents each.

Monstera deliciosa.—Arnm family.

A noble epiphytic climber with large scolloped and perforated leaves, native of Mexico. Tbe fruit, a sort of stalk (spadix), is edible and sweet-scented, having a flavour like pineapples, but is rather juiceless. Moist low-country up to abont 1,500 ft. Soil a mixture of decayed coconut fibre, old bark, pieces of broken bricks, rotted turf, and chopped moss. Prop. by cuttings or seeds. Plaut cuttiugs where intended to grow; as against large trees, decayed trunks, &c.

Price: Rs. 5 per cntting.

Nephelium lappaceum.—Rambntam; Rumtum, *S.*

A Malayan fruit-tree of medium size and graceful spreading habit, its bright red fruits, suspended in clusters from the ends of the branches during June and July, rendering it especially attractive. Tbe bur-like fruit, covered with long soft fleshy spines, is used for dessert, the acidulous white aril adhearing to the seed and separating readily from the shell, being agreeably tasty and refresbing. Low-conntry up to abont 2,000 ft. Deep loamy soil. Prop. by seeds.

Price: Plants Rs. 3 per dozen; seeds 75 cents per 100.

Passiflora laurifolia.—Water-lemon; "Jamaica Honeysuckle."

Passion-fruit family. A handsome West Indian climber with laurel-like foliage. Its egg-shaped fruit with soft, yellow rind, contains a quantity of an agreeably sweet watery pulp; it is considered the best dessert fruit of tbis family. A desirable plant for growing ou arbours, &c., and as a screen to the sides of plant honses. It will thrive np to about 2,000 ft. Ligbt humous and well-drained soil. Prop. by cuttings or seeds.

Price: Plants 20 cents each; cuttings 25 cents per dozen.

Passiflora quadrangularis.—Granadilla; Garandilla, or Rata-pubul, *S.*; Seemasorakai, *T.*

Passion-fruit family. This fast growing square-stemmed climber, introduced from Tropical America, is more robust in babit than the latter species. Its large oblong greenish-yellow fruit, resembling a vegetable-marrow, contaius a mass of purple sweet acid pulp. In the unripe state it is boiled aud nsed as a delicate vegetable. The root is usually swollen and fleshy, and is sometimes eaten like a yam. The flowers are generally fertilized by insects, in the absence of which artificial fertilization mnst be effected by hand. Low-country to abour 3,000 ft. loose rich soil. Plant against trees, fences, &c. Prop. by cuttings or seeds.

Price: Plants 20 cents each; cuttings 25 ceuts per dozen.

Persea gratissima.—Avocado pear; Alligator; pear; Soldier's butter; Et-pera *S.*; Anakoya-pallam, *T.*

A small-sized tree of the Cinnamon family, native of Tropical America. Tbe fruit, which remains green when ripe, is of the form of a large pear. When fit for eating, the ronnd stone (sed) in the centre becomes loose from the pulp, which is ½ to ¾ in. thick, cream-coloured, of the cousistency of firm butter, and may be eaten either plain or flavoured with pepper and salt, vinegar, wine, &c., according to taste. It is a grateful and wholesome fruit, being esteemed by some as a substitute for butter with bread; it is also prepared and relisbed in other ways. A useful oil is obtained from the pulp by expression. From sea-level to about 2,000 ft. Fairly deep and well-drained soil. Prop. by seeds, which should be sown as soon as taken from the fruit; they germinate in a few days.

Price: Plants 25 ceuts each.

Photinia japonica.—Loquat; Japansese medlar.

Apple family. China and Japan. A tree of middling size and symmetrical habit, with large handsome leaves, whicb are woolly-white underneath; cultivated as a fruit tree in most worm countries. Tbe small oval yellow fruit is not unlike a crab-apple both iu appearance and taste, being rather acid in flavour. Medium and fairly high elevations. Plants are raised readily from seeds, bnt superior varieties should be propagated by grafting. Light rich soil with good drainage.

Price: Seedling plants 25 cents each.

Psidium Cattleyanum.—China guava Purple gnava; Calcutta gnava.

A small shrubby tree. native of Tropical America, said to be extensively cultivated iu China and Japan especially. Tbe spherical dark claret-coloured fruit is the best for dessert of the guava kind, its flavour being compared to that of strawberries. Thrives best at medium altitudes and up to about 4,000 ft. Light rich soil. Prop. by seeds or layering.

Price: Seedling plants 25 cents each.

Psidum Guyava.—Guava; Pera, *S.*; Koya-pallam, *T.* A low shrubby tree, ofteu a shrub, long introduced from Tropical America, now naturalized in Ceylon, India and elsewhere in the east. Solect varieties are cultivated in most warm countries for the sake of the fruit, wbich may be used either for dessert or made into pudding, jam, jelly, &c.; it is also largely made into preserves, in which form it is au article of export in some countries. Medinm and moderately high altitudes. Loose loamy soil with good drainage. Prop. by seeds, suckers, cnttings, or grafting.

Pice: Seedling plants 20 cents each.

Sandoricum indicum.—Santol.

A handsome lofty tree of Malaya, producing in June and July large clusters of yellow globular fruits, which resemble small oranges. Like the Rambutan, the soft white aril covering the seeds (5) is of an agreeably acid and refreshing taste; fermented and mixed with rice, au intoxicating drink is prepared from it. Will thrive in the moist low-country up to about 1,500 ft. Deep loamy soil. Prop. by seeds. Sow in woll-prepared beds.

Price: Plants 25 cents each.

Sarcocephalus esculentus.—Negro-peach; Ratabakmi, *S.*

A robust climbing or spreading shrub, allied to tbe Cinchona, and native of West Tropical Africa. The brown warty fruit, produced in almost all seasons of the year is abont the size of an apple, the soft reddish edible pulp being rather juicy and of a sweetish taste. Low-country up to about 2,000 ft. Will thrive iu auy fairly deep and drained soil, Prop. by seeds and cuttings. Sow seeds in pots &c., under cover.

Price: Plants 25 cents each; cuttings 25 cents per dozen.

Tamarindus indica.—Tamarind; Siyambala, *S.*; Pullium, *T.*

This well-known large handsome leguminous tree is considered to be originally a native of Tropical Africa, though long naturalized in Ceylon, India, &c. It lives to a great age and affords a very valuable and beautiful timber. The acid pulp of its pods forms the Tamarinds of commerce, being preserved in syrnp or with sugar. Tamarind wine and other cooling driuks are also prepard from tbe fruit. Season, December and February. Low-country up to 1,500 ft. Deep alluvial soil. Pro. by seed.

Price: Plants 20 ccnts each.

Vangueria edulis.—Voa-vanga.

A small mnch-branched shrnby and decidnous tree, native of Madagascar. The greenish-yellow, apple-like fruit is sncclent and edible. The large sbiring light green leaves are of various uses in medicine in its native country. Moist low-country up to about 2,000 ft. Rich loamy soil. Prop. by seed and cuttings.

Price; Plants 25 cents each.

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H. F. MACMILLAN,
Curator, Royal Botanic Gardens.

Peradeniya, May 26, 1899.

ALOE FIBRE.

A NEW INDUSTRY FOR CEYLON.

INTERVIEW WITH MR. ARTHUR SILBURN.

[WITH NOTES BY AN EXPERT.]

Mr. Silburn is in Ceylon in connection with a Syndicate recently formed for working aloe fibre, which, it has been discovered, possesses the same valuable properties that Manila hemp has long been credited with, with the additional advantage of being superior in several respects.*a* If it can be properly worked, concerning which Mr. Silburn is confident, visions open up of a new and profitable industry in which all can join, but more especially those who are at present thinking of abandoning the cultivation of tea on portions of their land.

Mr. Silburn is the inventor and sole patentee of the decorticating machine which purposes to do the trick, that is, extract the fibre from the aloe leaf and convert it into a valuable market commodity. Our readers must have had their attention attracted to an advertisement appearing lately above the name of Mr. W. Jenkins, inviting supplies of the leaves of the large green prickly aloe. Mr. Jenkins is a member of the Syndicate we have referred to, and is associated with other well-known gentlemen, whose general "cannyness" is amply sufficient to justify confidence in the potentialities of the new concern.

Mr. Silburn arrived in Ceylon from South Africa in August last for the purpose of extending the patentee rights of his decorticating machine, which he has at last secured and which covers a period of protection of fourteen years. On leaving Ceylon Mr. Silburn proceeded on a similar mission to India and has taken out patent rights in the adjoining continent. He has entrusted Messrs. Walker Sons & Co., with the manufacture of one of his machines, which he expects to have in readiness shortly. Mr. Stevenson has consented to have the machine set up at the Mattacooly Mills in order that experiments may be carried out, and if these prove satisfactory no time would be lost in establishing a manufactory to push on the work of the Syndicate on a more extensive scale. The machine has for years been in use in Natal, has carried off gold and silver medals at international exhibitions held in Mauritius, New Zealand, and Durban.*a* Mr. Silburn, in fact, was awarded medals at both the 1895 and 1897 Exhibitions held in Durban. This gentleman informed our reporter that the chief preliminary trouble he anticipated was in getting sufficient of the raw material. There were various species of the aloe plant, but what the Syndicate wanted and had advertised for was for the leaves of *Agave Fourcroyæ* (*sic*) or green aloe, *b* not the *American Gigantica* (*sic*) *c* or blue aloe which was so frequently met with in the grounds of Government House and elsewhere.

"Have you seen any of the kind you want in the Island?"—"Oh! yes. We have received advices of quantities that are being sent down by planters. The plant is, in fact, indigenous to the Island. *d* I have seen it growing wild about Kandy round by the Buddhist Temple. It grows in any soil, principally rock. However poor land may be for other purposes, green prickly aloe will grow there. It spreads with rapidity of weeds, requires little or no attention, and no expenditure in the way of manuring. It is superior to ramie in one sense and is to be preferred on account of its high commercial value, and we expect it to take the place of Manila hemp and to be largely in requisition for the manufacture of ropes.*e* Indeed, I have already large orders from India, if they could only be executed."

"Where are you going to establish yourself in India?"—At Lucknow, where I have been able to secure a large grant of land, some 600 acres in extent, which are being planted out now from saplings supplied both myself and from public gardens in India. It takes two years to come to maturity."

"How do you purpose to plant it in Ceylon By seed?"—"By saplings *f* procured from the wild plants growing about the country. It will be a very large industry, employing a large number of people both in its cultivation and manufacture."

"What number would you say?"—"Oh! that depends upon the size of the mills and the business that would be created. In its manufacture alone a large number of natives would be required. In addition it would put work on the railway, especially on that portion of the line where the plants are thickest."

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a Inferior to Manila Hemp in *strength*—former would always command a higher price.—E.

a Have seen *one* silver medal for this machine only, and only Mr. Silburn's word for that—a Natal Medal. In Mauritius only the old "gratto" machine is used costing about R250 similar I think to the "Raspador" of Yacatan.—E.

b Fourcroya Gigantea (*not* agave.)—E.

c American agave Gigantica.—E.

d I doubt entirely its being indigenous, any more than lantana.—E.

e Will not bear the same strain as Manila Hemp but probably comes in a good second.—E.

f Sucklings.—E.

"Have you made any application to the authorities for assistance?"—"We intend to apply that for the purpose of our experiment the Railway authorities should grant a rebate of the dues. The experiment, as it is, will entail a great deal of expense. It is a new industry which should benefit the Colony a good deal. The machinery will be made in the Colony the plants are grown in the Colony; native labour will be employed, both skilled and otherwise; it will increase the revenue of the railway and the shipping agencies and the money realized by the sale of the fibre will be spent in the Colony. Large orders are constantly being received for the supply of the raw material and these are likely to increase especially as I see from today's papers that the American have captured Ilo Ilo, which was abandoned after the Filippinos had first fired the place."

"But the telegram said the Americans speedily extinguished the flames?"—"Yes, but there is no reason to doubt that the Filippinos destroyed the manufactories in the same way as they did the chief centre at Manila. From the latest advices Manila hemp has gone up from £40 to £ 50 a ton in consequence of the disturbed state of the country."

"I suppose the machine has been tested at Natal?"—"Oh! yes, and also in London and Glasgow, and from the latter place we have received orders to supply on an average 100 tons a month for weaving and rope purposes. The chief difficulty is to get a sufficient supply of the green stuff.*a*

"Is that likely to be a serious difficulty in Ceylon?"—"No, I regard Ceylon as the natural *habitat* of the plant. It was a great difficulty in Natal. We had to plant out and experienced a lot of trouble through it. The cultivation of the aloe plant should specially commend itself to the tea planter. If he finds that his tea is likely to come to grief, that his land is bad and will not grow tea, or that he cannot afford to go in for manuring, constant pruning, and such like, he had better put in aloe, wait two years and then he would find he would get a valuable commodity which would last for seven years before it would require being renewed. That is what we do in Africa, where those engaged in the sugar industry chiefly suffer through the ravages of locusts, which sometimes threaten the grower with ruin altogether. In the Bahamas there are 70,000 acres planted with sizal hemp which is not so good as the aloe fibre, and only obtains an inferior price in the market, rates being governed solely from the standpoint of the length of the strips. The machine which I have patented is the only fibre extractor in Africa.*b* I hope to get a sufficient supply of green stuff to commence experiments in a fortnight's time I have had the machine protected in Ceylon India, and Burma, and machinery is being constructed in Calcutta. It will deal with all leaves containing any fibre, independent of size, from a ten-foot aloe leaf to a foot pineapple leaf *c*. It is a self-feeding machine capable of being adapted to any size. Of course, I have not had time to go much about the country, but as I have sa I believed the particular plants we want thriv largely in Ceylon."

The conversation ended here Mr. Silburn's attention being called off to attend to matters connected with the forthcoming work of the Syndicate.—Local "Independent."

[The commercial name of the fibre is *Mauritius Hemp* of which 800 to 1,000 bales are exported from the Colony monthly but it is claimed that the machine will produce the hemp longer, better, and unbroken and extract *at least twice* the weight of dry fibre from the same wieght of green aloe leaf.—Ed. *T.A.*]

a Machine has never been tested except in Natal Mr. Stevensons's own machine, primitively made according to Silburn's drawings. Some fibre was sent to London and Glasgow and reported upon.—E.

b There are a number of powerful machines in use in Bahamas, Yucatan, &c. with a very large fibre-texracting capacity.—E.

c Would need special adjustment for a small leaf.—E.

CUPRESSUS MACROCARPA

In the villa gardens round about Torquay this Conifer is put to valuable use, and if proper attention be afforded, it admirably answers its purpose. Many of the villas are built on undulating land, and the roofs of some are almost in a line with the ground floors of those just above them on the hills. It follows that the garden of one is often open to those of its neighbour, and even to those placed on level ground, there is always a desire on the part of the occupants for a certain degree of privacy and seclusion, so essential to the enjoyment of a garden. The garden-walls are about 3 or 4 feet high, with soil on the inside borders almost level with the top of the wall. On this a number of Cupressus macrocarpa are planted, 2 or 3 feet apart, and being a quick grower, the lower portion soon thickens; and when the plants have grown some 6 or 8 feet high the leaders are cut away which encourage the thickening of the top. Ere, however, this finishing part is permitted, it is necessary that a strong iron railing be run the whole length of the intended hedge, and stout iron standard and stays well secured to the wall as well as the border inside with a couple of rails, one about 2 feet from the ground, and the other 5 feet. These of course, are firmly fixed to the upright so that when finished the whole is strong and able to resist the winds which will, by-and-by, try the hedge. The plants are secured to this iron railing, which is soon hidden and as they reach the height previously mentioned topped and clipped, a most compact and beautiful hedge is formed which entirely shields everything in the garden from the gaze of passers by or from neighbourly observation. The hedge may be permitted to measure 3 feet through at the base, gradually slopping in height till the top, perfectly level, is about a foot in thickness. Some run just 6 feet heigh, 2 feet at the base, slopping gradually to the top. The bright, pleasant green of the young shoots just at the present season makes such a hedge singularly attractive. Some of the owners, I notice, have made provision for the little gaps that occasionally occur in the lower part of the plants by planting a row of Euonymus between the Cupressus and the walls; these are kept dense and compact by constant clipping. The variegated forms as well as the common Euonymus are used, the whole making a very pretty and complete bank of vegetation, always green, and most attractive. The beauty of such a hedge is, of course, enhanced and preserved by regular clippings —twice a year they should be attended to by one who thoroughly understands his work. Of course, any one can use a pair of clipping shears; but where straight and curved lines and level top are to be maintained it is very desirable that one who is somewhat of an adept at his work should be always permitted to do it. In the hot summer seasons in the south of Devon, and on raised banks and borders, it is necessary that the hose-pipe be used, and abundant supplies of water constantly afforded, as only by such means can the health of the hedge-plants be maintained. *W. S., Exmouth.*—*Gardner's Chronicle.*

THE FERTILITY OF SOILS.

The factors upon which the fertility of the soil depend are many. The amount of plant-food and its degree of solubility' the mechanical texture or tilth, and the climate, which includes temperature, amount of rainfall, &c., are the chief of these.

Soils to be fertile must contain the elements of plant-food in such forms that they can be readily used for the nutrition of vegetation. At the same time, its condition must not be too loose, else a firm hold will not be afforded to the roots of plants, and there will be too much drainage and evaporation; nor must it be too heavy and plastic, for then air and water could not freely permeate it, nor the roots extend themselves beyond a very limited area. Generally speaking, light, loose soils are not as rich in plant-food as those in which clay predominates; yet, on account of their excellent condition of tilth, and the ease with which they are worked, they are specially adapted for most horticultural purposes, and having a sufficiency of manure, they often yield in favourable seasons heavier crops than the, stronger soils would do. Stiff heavy clays, though rich in inorganic food, potash, and phosphoric acid, are often poor in nitrogen, while their mechanical condition is such as to prevent through aëration and the penetration of the roots. It is these soils especially that are benefited by drainage. By a system of drainage the water which saturates the surface-soil is carried off, air allowed to permeate, the whole is rendered more friable and easily worked, and much plant-food is converted into assimilable forms.

Where sand largely preponderates, the soil is not retentive of moisture and fertilising material, especially if the subsoil be light, and though easily worked it is not so desirable in very dry seasons as on a heavier soil. A proper proportion of sand and clay therefore, for many reasons, makes the best soil. With the clay and sand, varying amounts of peaty matter, or humus derived from the decomposition of vegetable matter, may be mixed. In horticulture leaf-mould is largely used. Calcareons matter, chalk, lime, and bone-meal, are usually associated, and a light proportion of these exerts a beneficial influence upon the tilth of the soil, as well as upon the solubility of the plant-food. By the slow decomposition of the clay, the vegetable matter, and the lime, valuable plant-nutrients, are liberated in a soluble form, and therefore the function of these soil constituents is, not only mechanical bnt chemical.

The most important ignorganic constituents of a soil are potash and phosphoric acid. These, together with nitrogen, are known as the essential elements of plant-food.

To understand the question of soil-fertility, the gardener should become familiar with these matters, should know what these elements will do for crops and plants, and when and how to apply them.

Nitrogen.—This element, like potash, lime, and phosphoric acid, is an essential constituent of all plants. In its free state it is a permanent gas, and is one of the most widely distributed elements, comprising about four-fiths of the earth's atmosphere. This vast supply of nitrogen is, however, of no direct value to plants, since they are unable to use it, except when combined with the elements oxygen or hydrogen, forming nitric acid and ammonia, that may be taken up through the roots of plants. Leguminous plants, like Peas, Beans Lupins, &c., and possibly Orchids, are indirectly able to build up their nitrogenous ingredients from the free nitrogen of the air, through the activities of misroscopic plants (known as bacteria) intimately associated with them; other plants may, possibly, under favourable conditions to some extent have the same faculty.

Nitrogen is present in the soil in simple combinations as nitrates or ammonia salts, or as more complex organic compounds, forming the dark coloured humus especially abundant in peat, leaf-mould, and forest soils. The total quantity of nitrogen in ordinary soils varies between 0·1 and 0·2 per cent.; occasionally the nitrogen content will approach one per cent., as in the case of rich pasture soils. Peat soils will often contain over two per cent. of nitrogen; this is however; largely in a combination that will not directly sustain plant life, but has to undergo a weathering process before the plant can make use of it

Nitrogenous manures help to strengthen plants in their earlier growth, favour leaf development, and give a deep green healthy colour to the foliage; applied in excessive quantities they induce rank growth at the expense of the development of the fruit.

Phosphoric acid is present in soils in combination with a number of other chemical substances, which exert a very beneficial influence on the growth of plants. Phosphoric acid is found in soils partly in a form that plants can readily dissolve and make use of in the building of their structure, partly in an insoluble form which under the influence of water carbonic acid and air, or the mineral components of the soil are gradually changed into available plant food. There is only a small quantity of phosphoric acid in ordinary soils, viz., less than 0·2 per cent., and often only 0·05 per cent.; but as the content is not decreased in any way except by the growing of crops, the soil will only become deficient in this constituent in case of continuous cropping without manuring.

Phosphoric acid is of special importance in the early life of plants; it stimulates the assimilation of mineral substances in the plant, and favours the development of its root system. There is an intimate relation between the nitrogenous principles and the phosphoric acid in plants, and we find that, generally speaking, a high nitrogen content is accompanied by a high percentage of phosphoric acid. The phosphoric acid of plants is usually concentrated in their maturing organs, the flower and seed.

Potash is found in Nature in conbination with acids like sulphuric, carbonic, and silicic acid. Potash is generally distributed in small quantities in most soils, except light sandy soils, which are apt to be deficient in this fertilising element it is found in ordinary soils in somewhat larger quantities than phosphoric acid, namely, from one to three-tenths of one per cent., and occasionally as much as one per cent. in case of soils orginating from granite, basaltic, and other rocks rich in potash. Like phosphoric acid, potash may be present in the soil in a non-available form, especially as double silicates, that are bnt slowly decomposed through the action of water, air, and other constituents of the soil.

Potash is fonnd in the largest quantities in foliage plants, in leguminous plants, in Vines, and in Potatos. It is of the greatest value to plants, in facilitating the flow of sap, and the diffusion of starch from cell to cell. It gives increased strength to the cell structure of plants and has in general a benificial influence on the flavour and textnre of fruits and Potatos.

Lime is present in most fertile soils in sufficient quantities to allow of the production of large crops, but occasionally there will be too little of it to reach this end, in which case the addition of some lime compound to the soil, will produce very beneficial results. It is considered that a lime content of one-half of one per cent. an ample supply in light soils, while heavy soils may need 2 per cent. or more.

The good effects from the addition of lime to soils do not come only from the increase of an ingredient essential to plant growth, bnt the mechanical condition of the soil, its texture, water and heat-retaining capacity, are improved. This same is true in perhaps all cases when fertilisers are applied to soils, a fact which is generally overlooked by horticulturists.—*Gardener's Chronicle.*

THE RAMIE SYNDICATE.

The Ramie Syndicate, Hythe End Mill, Staines, sends us the following:—You will perhaps not be indisposed to give your readers the news of our experments having proved most successfnl. When we started we were confronted with the following difficulties: 1st, supply; 2nd, decortication; 3rd, preparation; 4th, spinning, and lastly demand or market. I will deal with these seriatim later. Un-

gumming which had hitherto proved such a fruitful source of difficulty had long been overcome by us; the gum question presented no terrors nor difficulties to us; by our method ungumming is simple and the durability of the fibre is unsurpassed as is proved by the yarns which have been in use now three years, they are as strong now as when first prepared. I refer to those made at Staines. I have products prepared by our process which have been in use ten years and are as good now as ever. I will deal with the obstacles as they appeared at the initiation of our works at Staines:

1st. Supply.—There is a vast supply in China, where the natives have cultivated it and all the best textiles are made from it. The wealthy Chinese hold it in high esteem and it fetches high prices. Very small quantities compared with the vast crops grown, unfortunately, have yet found their way out of China. We have based our calculations on the price of raw material at £30 per ton, and at this price I can show a paying industry competing with flax, but I am promised contracts as low as £20 per ton; this will open up a vast field and enable us to compete with cotton. India produces vast quantities in a wild state, these will have to be brought under cultivation. Dr. Morris, of Kew, recommends Ramie to the planters who cannot make sugar pay. It would be a boon to our West India Colonies. The Australian Colonies are growing Ramie, Queensland and N. S. Wales have sent us splendid quality. The U. S. Government are recommending it to their farmers and the Government has voted a large sum $145,000 to the establishment of experimental plantations. Mexico, it appears from a consular report, shows 145 per cent profit in ramie growing. From South America I have splendid samples, and as many as four crops in the year are cut; and I am promised regular supplies at a price which will put Ramie on the market a competitor to cotton. There is a vast field in Egypt and the Soudan. Thus Government of Natal is recommending Ramie growing. Plantations are already started in Borneo, Ceylon, Straits Settlements, Formosa, Java and Malay Peninsular. Corea produces splendid Ramie and the Japanese are turning their attention to Ramie growing. In short I hear from all quarters of the globe, of the great advance in Ramie growing, and I have not the slightest doubt it will prove a strong rival to cotton. To our colonies I would suggest Ramie growing, and by the use of our decorticators, ribbons could be prepared while a green state for the ungumming process, and filasse should be prepared on the plantations; it is a simple operation and the plant would not be expensive. The filasse so produced would be far superior to that produced from the dried ribbons, and in addition there would be a great saving in freight the waste products viz., the leaves and lateral shoots would produce an invaluable pulp for high class paper making and command a high price.

2nd. Decortication.—In China this is accomplished by hand labour. The operator strips the ribbons from the steam and scrapes the fibre, removing the pelicule or brown bark and much of the pectose gummy matter while in a green state. The natives of India merely strip the plant and make no attempt to clean them. These rhea ribbons command a much lower price than the Chinese cleaned strips. Our decorticator cleans the ribbons similarly but in a more perfect condition to that produced by Chinese hand labour, removing considerably more of the pectose in its fluid state.

3rd. Preparation.—The next difficulty is dressing the fibre ready for the spinner; hitherto the expensive process of preparing on silk dressing machinery has stood in the way, and when we can turn out an article absolutely without waste beyond the shorts or noils which exist in the fibre at a cost of one-half penny, which hitherto has cost 9d. we can claim success and considerable advance.

4th. Spinning:—This is now a simple process, our wet spinning frames produce an even yarn, grasing is no longer necessary and the strength and lustre of the fibre is materially advanced by its abolishment.

Lastly Market.—On account of its great strength and lustre it is specially in demand for lace, duck, khaki, sail cloth, fishing lines, braiding, tapestry, and all purposes where special strength or lustre is of advantage. It mixes with and fortifies weak wools. And as the price of raw material is lessened, so in proportion will the demand increase. Our latest is milo-thread. For yacht sails it has achieved a great success; "the Defenders" sails were Ramie. The Bona, one of the most successful English yachts, carried Ramie sails made by our process. As the fibre does not rot in water it is particularly applicable to fishing nets, rails and rigging, and its great strength commends it further for these purposes.—"*Planter.*"

NEW PROCESS OF TEA MANUFACTURE IN COLOMBO.

A SERIES OF INVENTIONS.

THE NEW VENTILATING FAN

At Messrs. Davidson & Co.'s Sirocco works in Forbes Road, Maradana, Mr. F. G. MaGuire has just finished erecting a complete plan for the manufacture of tea by "hot process," and has put through the fiist break from start to finish. He manufactures on Tuesdays and Fridays; but on other days visitors will be wellcomed. The factory is fitted throughout with nothing but Davidson's patent mahinery, and includes several novel features. First of all there is the new withering machine, which is the only one at present erected in the island, though previously a model one, with which experiments have been conducted, was set up on Polatagama estate in the Kelni Valley, and which existed all last year. The machine is capable of keeping two rollers going, and is driven by a new and ingenous engine which has proved quite a success at home. It is a highspeed engine without any packing, except on the piston ring. The governor and the valve also are both situated inside the steam chest and this forms a special featnre of the invention, for, as shown by Mr. MaGuire, the governor regulates the working of the machine to a nicety unapproached by an outside governor. The main bearing and crank shaft, too, are submerged in oil, and an indicator is fixed to the outside of the oil bath, to constantly show the depth of oil.

Even when wet leaf is put into the witherer, in an hour's time it is ready for the roller, and in three hours the whole process from green leaf to black tea—but not the grading, &c.—is completed. With the roller, experiments are now being carried on to effect an increased degree of pressure by means of interchangeable cones in the centre rolling table. From the roller the tea passes into an evaporator, the object of which is to decrease the percentage of water to obtain a good twist on the leaf in the second rolling. This machine is fitted with one of the new patent fans, encased and driven by its own little engine. The down draft sirocco for firing is, of course, familiar to our readers; but at Maradana this also is fitted with a new fan, in place of a chimney, for the blast. Besides requiring a far less quantity of fuel the driver now consumes its own smoke, so that nothing but clear gas issues from the shaft. Then at the other end of the room, is one of Davidson's large sorting machines and a Davidson-MaGuire Packing Machine, on which the morning twenty Acme chests were being placed in position to receive the first batch of tea, to be sent to Belfast to be sampled and sold. In course of time some of the breaks made, will be put on the local market; and experiments will be carried on for another month. The leaf from which the first break of tea has been made was bought from a native estate in Kaduganawa at 6 cents a lb., and Mr. MaGuire claims that from this inferior material he has made good tea. The tea continues

hot from start to finish, and by this means it is asserted that, after a few additional experiments, it will be possible to make tea of a penny per lb. higher value than by the old process, which besides the saving of time and fuel, would naturally, amply repay and additional outlay in machinery. There is the further valuable consideration that instead of an expensive three-storey factory a simple shed of one floor will suffice to accommodate the machinery for the manufacture of any quantity of tea Estates it is expected, will send down leaf to be experimented with as a practical way of testing what is claimed for the new method in improving prices. At the end of the office a laboratory has been fitted up in which chemical tests are carried on, and where with a powerful little miscroscope the leaf is examined in the various stages of manufacture.

THE "REVOLUTION" IN FANS.

Perhaps the most ingenious of all the new things to be seen at Messrs Davidson's Works, however is the fan. This was described in a letter in our paper of the 28th March, and the first shipment of 18 ventilating fans arrived by the last Bibby steamer. These had been preceded by two fans for smoke chimneys, one of which has been sent to Balangoda for Messrs. Finlay, Muir & Co., and the other is going to one of the Haputale estates of Lipton, Limited. The eighteen ventilating fans were all of 30 and 35 inches diameter; and last night the remaining eight were booked—two by one firm, and six by another the orders being for two fans in each factory. Another shipment is expected by the next Bibby steamer, when various sizes, from 15 inches to 35 inches, of the ventilating fans will come to hand. The new fans have not been advertised at home as yet, because, although the number turned out at Belfast is daily increasing, the existing demand can hardly be coped with. Before long, we are informed, 25 a day will be produced, and then the invention will be extensively advertised, and the production will be increased as quickly as possible to 100 per day. A contract has been obtained for the ventilation and cooling and heating, of the Law Courts in London, which have always been in an unsatisfactory atmospheric condition; and the fans are to be used in connection with the scheme, which involves a seperate plant for each court with refrigerating and heating apparatus for winter and summer respectively. The air will also be filtered, so that fog and other impurities may not enter. In addition to this the ventilation of the House of Commons is to be similarly improved; and exhaustive experiments were to be made a week or two ago by the Admiralty to see whether the new instruments did what was claimed for them, in which case Sir William White, the Chief Director of Naval construction, had declared they would be adopted at once through out the new vessels of the Navy. Information of the result of these tests has not yet come to hand. The flax and linen industry of Russia, which had been considerably pushed in recent years, and which requires fans for the benefit of the work people, has also produced a wonderful demand for the new patent, which we are told has been ordered in such numbers that the Russian market alone constitute a very important element. It is in Ceylon, however that the fans have been first advertised and first erected in different factories.

To describe the fan, one of which, 30 inches in diameter, is already in position and working at the Maradana establishment, we may say that it involves an entirely new idea in practical engineering. The fan hitherto familiar to the public possessed blades extending from the circumference to the centre and it follows, as a fact, that the maximum amount of work done by each blade is at the circumference, the force being lessened gradually until the centre is reached, where there is very little speed at all. Thus with any opposing pressure the efficiency of the old fan is greatly reduced, and air may even pass the opposite way through the centre, while the blades are doing their work at the outer edge. Davidson's patent may be described as shaped like a revolving squirrel cage, the blades being all of equal length round the circumference, and thus performing equal work throughout. By the same arrangement the space for the passage of air is as large as the fan itself, and the result is evident even to the lay mind, and is a marvellous advance on the old idea. an interesting feature is that the principle involved in the construction of the blades is in agreement with the contentions of professors, but contracts with the experience of engineers in all other fans; and the new vindication of the scientific theory is to be shortly discussed at the Institute of Mechanical Engineers. The advantage of the machine is that, while the air emerges with greatly increased force it enters in a regular and even manner, producing no disturbance in the vicinity. The air in fact is drawn from all directions as powerfully as from immediately in front, and thus a much greater area of space is under its action. The regularity of the entrance of the air was also shown when a funnel was fixed to the bracket which holds the fan. The atmosphere rushed into this in a full and regular steam, indicating the fan's great capacity for disposing of an unusual volume of air in a given time The speed was tested at various distances and from various directions by an anemometer, and established the inventor's contention. The fan was then running, driven by a belt, at 380 revolutions a minute, and 10,584 cubic feet of air per minute were being drawn through. This entered at the rate of 2,000 feet, but was ejected on the other side at the rate of 5,530 feet, when reversed the fan does nothing. It may also be mentioned that the bracket holding the fan has the shaft suspended like the axle of a bicycle, and the two bearings are in one piece, so that even if carelessly erected by an inexperienced person, they cannot be put up out of line. On the outside a solid disc prevents high wind, or even a cyclone, disturbing its efficiency; and the air is discharged with equal force on all sides. The force of this air can be utilised for an upper loft by the fan being enclosed and the air conducted to the storey above The power used was only about ¼ h. p.

Close by the fan already in position preparations were going forward for the erection of a still larger fan, to be completed by this afternoon. Although no harm would result, it would be waste of energy to over-drive a small fan, and according to the amount of work to be accomplished, machines of certain diameters are recommended. Mr. MaGuire further explained that the fans can be driven by electric motor and by water power, with new Pelton wheels recently patented by the inventor of the fan. A volume of photographs further shows the variety of uses to which the invention can be put; and other pictures represent some highly interesting tests, one of which in competition with one of the older style of fans of three times its area was fully decribed in our issue of the 28th March.—Local "Times."

COFFEE.—The *Moniteur des Interêts Matériels* says the coffee crop of 1895 with 6,500,000 bags realised £25,000,000. The result induced increased production, but in 1897 the exportation of 9,500,000 bags only brought in £10,000,000, and the 10,000,000 bags in 1898 only realised £15,000,000.

THE MUNICIPALITY of Bariry, S Paulo, has about five millions of coffee trees planted of various ages. Its first crop will be gathered this year, which is estimated at 150,000 arrobas of coffee. A coffee plantation at Mococa, Sao Paulo, was recently sold at judicial auction for the sum of 90,000$ its valuation being 202,000$. The plantation contained 112,000 coffee trees, 5,000 arrobas of picked coffee, coffee-cleaning machinery, buildings, saw-mill, etc., etc. It looks like a decided sacrifice.—*Rio News.*

RUBBER CULTIVATION IN CEYLON;

THE LATEST INFORMATION AS TO CASTILLOA, PARA AND CEARA KINDS;

ABOUT 1,500 ACRES NOW COVERED WITH RUBBER TREES IN CEYLON; THE APPROACHING REVOLUTION:—

NOT ONLY IN THE SYSTEM OF SEPARATING CAOUTCHOUC FROM MILK; BUT ALSO IN EXTRACTING RUBBER FROM THE STEMS OF YOUNG TREES.

We direct attention to a very important letter on local Rubber cultivation, above the well-known signature of "E.S.G." on page 94. The writer will be admitted to have? had exceptional means of forming reliable opinions on the points he discusses, and where these differ from any in the official "Rubber" Circulars, we believe it will be safer to follow the lead of the practical planter. "E.S.G.", then, for good reasons given, rehabilitates Para rubber to a very great extent; and, indeed, we have never seen good reason for the rush from one extreme to the other in reference to the cultivation of this variety, nor could Mr. Willis mean that his latest views in favour of Castilloa should be construed to the deprecation of the continued cultivation of Para, where such had been established. We may even go farther and say that there is scope and fair encouragement for the continued planting of Para outside of the limited region between Kalutara and Ratnapura, which is considered most favourable for its growth; and in which, perhaps, the Castilloa tree would not prosper so well Nevertheless, the latter, as "E.S.G." and Mr. Willis both show, has an extensive field for its production; and there is no reason why, as soon as seed is available, it (the Mexican tree) should not grow very freely both up and down country.

It will be observed that "E.S.G.," although in possession of the results of tapping experiments, does not give us estimates or figures, in the meantime, though he promises to do so at no distant date. On the other hand, there has been some instructive and even amusing correspondence in a local contemporary's columns on the subject. "J.M.", who was one of the first to plant "Castilloa", has shewn how, even in the face of a splendid valuation for the resulting rubber—which passed through our hands—he was officially discouraged from continuing the cultivation! "The whirligig of time" has indeed brought about "its revenge." Major Gordon Reeves, who now owns the Wiharegama estate and the trees planted by "J.M.", reports of the several old trees of Castilloa and his harvesting, as follows:—

There is no difficulty whatever in raising plants, and in a wet district I should imagine that any sized plants from seedlings of 3 inches to stumps of 2 feet will grow readily. In our climate, which is rather a dry one, I think there is no doubt that good sized stumps do best. The old trees on Wiharegama must have a girth of quite 30 inches at 3 feet, and are probably 30 feet high and of spreading habit and rather resembling a teak tree: these are planted through the cacao, and do not seem to have any injurious effect on the latter, and we are now extending plantations of cacao, with *Castilloa* 20 feet apart, and *Erythrina* as a temporary shade. I had two of the old *Castilloa* experimentally tapped, taking only about 1½ lb. of rubber, though a great deal more could, of course, have been taken: the milk was simply run into butter tins without any cleansing, and dried chiefly in the sun, which is we *now* know an injurious process. The samples were forwarded to Messrs. W. Wright and Co., the principal India-rubber brokers in Liverpool, and are reported on as follows:—

No. 1.—Good, clean, strong, dry rubber, value about 3s 6½d per lb.

No. 2.—Good, clean, fairly strong rubber, but very wet, value about 2s 11d per lb.

A very satisfactory report, considering how little we then knew about curing. *Fine* Para rubber is only worth 4s 2d.

Next "J.M." recalls estimates for a Castilloa plantation in Nicaragua, which were given in the *Observer* and which can readily be found in full detail in the *Tropical Agriculturist* or still more conveniently in our Manual ("All about Rubber," a second edition of which is now passing through the press); but a few figures may be quoted if only to make the mouths water of some of our planting readers, in anticipation of a good time coming! Here is "J.M." quoting Mr. Cator:—

Cost of 500 acres of land at 5s per acre	£ 125	
,, survey and titles	100	
,, clearing land	1,000	
,, collecting seed, and planting...	500	
,, 8 years' weedings at £200 ..	1,600	£
,, tools, &c.	300	3,625
Interest on £3,625 for 8 years at 5 per cent.	1,450	
Superintendent's expenses, 8 years, at £200	1,600	
Cost of gathering the 8th year's crop	1,500	4,550
		£8,175

He estimates a profit at the 8th year as follows, *per acre*:

Dr.	£ s d	Cr.	£ s d
Cost of cultivation per acre	7 4 9	Government premium	2 8 3
Cost of tapping	3 0 0	Crop, 965 lbs., at 2s	96 10 0
Balance of profit per acre	88 13 6		
	£98 18 3		£98 18 3

Thus, 500 acres at £88 13s 6d = £44,337 10s profit on a capital of about £8,000; and, as if that was not sufficiently sanguine, take the 9th year by itself:—

	£		£
Expenditure for weeding	200	Value of crop in 9th year	50,000
,, harvesting	1,500		
,, planting	500		
Interest	180		
Profit	47,620		
	£50,000		£50,000

Here, indeed, seems room for enterprize, even taken midway between the utterances of the sanguine "man on the spot" and the pessimistic reports from the Peradeniya Gardens Director How this reminds us of the golden days of "Cinchona"!—when William Smith of Craigie Lea proved to a demonstration how foolish his partners, Colonel Byrde and Mr. John Davidson, were when they refused their consent to 150,000 cinchonas offered by Dr. Thwaites free from Hakgala ("a medicine

tree" as Col. Byrde rather contemptuously called it) being put out on Craigie Lea then being opened for coffee as the pioneer estate of Dimbula Felix in the early "sixties." Poor Smith—15 years afterwards when cinchona was booming and Nanuoya netted more than 10s a tree for some hundreds of mature trees cut down—used to say that his partners had thrown away £37,500, realizable by taking half of the 150,000 plants as coming to maturity at 10s a tree! No single proprietor in Ceylon, we fear, ever realized as much as a few thousands of pounds sterling from cinchona, although we got up to a shipment of 15 million lb. of bark in one year.

To return to Rubber: we may mention that we attempted some months ago to get an approximate idea of the extent to which the various kinds of rubber were cultivated on estates. First, we wished to see how far "Ceara" rubber, which was the earliest to be boomed, had been continued in cultivation; but our responses were but few; for, in most cases, the Ceara had been rooted out as inimical to cacao, or to give place to tea. We may quote a few illustrations: here, for instance, is a report from Crystal Hill estate, Matale:—

What kinds of Rubber are now growing? Three Ceara trees only remain out of several hundreds planted in 1878. A few hundreds of Castilloa were planted in October 1897 along with coconuts and are doing well.

Approximate age of oldest, Ceara 20 years.

Size of largest trees—circumference, height (actual or approximate), Ceara circumference 2 feet 4 inches, height about 30 feet.

Result of tapping, Nil.

Injuries or otherwise to plants underneath or near to the Cacao? Underneath the Ceara gave little or no crop. Wild pigs that had been attracted by the yam-like roots of the Ceara began to eat the Cacao pods, and the Cearas had therefore to be destroyed.

Going to the other end of the country in Madulsima, from an estate where there were 30 acres of rubber growing in 1886, the following was our latest report:—

What kinds of Rubber are now growing?—Ceara. Approximate age of oldest? About 18 years. Size of largest trees—circumference, height (actual or approximate.?) About 50 feet high, 4½ feet below lowest branch, 5 feet at the ground, branched out about 15 feet from ground.

There is only about one acre of rubber trees on estate now. Spread about. The rest have been cut out. I can't say what damage they would do to any other plants as they are near none.

Next from a Hantane estate that had ten acres of Ceara in 1886, we are told it was all rooted out and there are no rubber trees growing now. Again, the well-known Kandenewera estate, Matale, had 6,000 Ceara trees a dozen years ago; but Mr. Gordon replied in answer to our circular some months ago:—

The Ceara rubber trees on this estate have all been cut out, some of the largest were tapped four years ago experimentally, but the yield of rubber was very poor and watery. Certainly no success commercially. As shade trees to either Cacao or Cardamoms they are harmful, and being greedy feeders are undesirable cultivations with mixed products.

Sanquhar estate, Gampola, has still 80 Ceara rubber trees growing alongside a road, but we have no particulars as to size. On Hurstpierpoint in the Galle district, of 5,000 Ceara trees in 1886, there are still a few left about 17 years old, 30 to 40 feet high and 1½ to 2 feet in circumference.

Of reports on other Rubbers, we have a few to present. The Manager of Daisy Valley, Kurunegala, has put out a good deal of Para rubber from seed got in the Peradeniya Gardens. From Mr. P. D. Clark, Manager of Rasagalla, Balangoda we have a satisfactory report as to Para, showing, apparently, how much wider is the sphere for its successful growth, than Mr. Willis has conceived, when he confined it to the low-country between Kalutara and Ratnapura:—

What kind of Rubbers are now growing? Para rubber, Hevea Braziliensis, about 35,000 very promising trees. Cultivation to be extended. Approximate age of oldest, two years. Size of largest trees—circumference, height (actual or approximate,) 18 feet high, expected to tap from 8-10 year judging from present growth. Injuries or otherwise to plants underneath or near to? Apparently not injurious to tea.

Mr. Corrie was good enough, some months ago, to report from Gikiyanakanda in the Kalutara district as follows;—

What kinds of Rubber are now growing? Para and Castilloa. Approximate age of oldest, six years. Size of largest trees—circumference, height (actual or approximate,) 9 inches diameter, 3 feet from bottom, height say 30 feet. Injuries or otherwise to plants underneath or near to? All our Rubber but a new clearing just planted is growing through tea. No damage to tea at present.

There are a few Ceara trees growing about 15 years old, but we do not tap them, not considering it worth while as the yield at this variety is so small.

From Mr. J. A. Storey, on Igalkanda estate. Elpitiya, we learn of Para rubber trees, six years old, doing well, the size being given as follows:—

Largest measured 33½ inches circumference at one yard from ground, several others over 30 inches. Height (approximate,) 35 feet.

And then we have what Major Gordon Reeves wrote to us at the time of our circular in regard to Wiharegama, which, of course, must be modified by his more recent information:—

What kinds of Rubber are now growing? Ceara Para, Castilloa, Approximate age of oldest, Ceara about 15 years, Para 5-6 years, Castilloa 8-10 years. Size of largest trees—circumference, height (actual or approximate.) Ceara, no measurement taken, Para circumference 2 feet to 2 feet 6 inches, height say 30 feet. Castilloa cir. 2 feet 6 inch to 3 feet, height say 25 feet. Result of tapping? In tapping experiments now being made (will report) with Para and Castilloa, but *not with Ceara*. Injuries or otherwise to plants underneath or near to Para rubber trees planted over nine acres of Cacao as shade. No injury apparent; on the contrary forms good shade at 20 to 25 feet apart. I proposed to plant as shade over a large extent of Cacao field.

So far three kinds of Rubber—Para, Castilloa and Ceara—have been mentioned. On a little estate in the Kelani Valley, there were, 12 years ago, some 500 specimens (creepers) of the East African rubber-yielding plant, Landolphia Kirkii, equal to four years' growth then, and kept as show stems and to see if they would seed. Unfortunately, these creepers no longer exist and this is the explanation offered by the proprietor, Mr. James Gibson:—

I regret that during my absence in India 1887 and 1888, that the man in charge cut out all the Landolphia Kirkii trees from Pleasure Ground

which is mine still and the few I also put in on Kennington were destroyed also. I do not know of any others on any estate; I was grieved at the destruction.

The above estate reports can, of course, be only taken as indicative of what is going on in many other estates in the planting districts. Twelve years ago we estimated 600 acres were covered with India-rubber trees, chiefly Ceara. Last year Mr. Willis estimated 750 acres of Para rubber alone; while our Directory returns in August last showed an aggregate of 1,071 acres, notwithstanding all that had been cleared out of Ceara. With all that has since been put out, of Para especially, we reckon that these figures may safely be increased to 1,500 acres. But we may be told that quantity or area does not matter so much as quality, and just as Ceara rubber—so rushed after at one time—was cast aside in Ceylon as well as Java in favour of the "Hevea" or Para, so is the latter about to be superseded by the Mexican or Castilloa tree. Now in all these conclusions, we think too much haste is manifested. We fear, indeed, that those who have abandoned even Ceara clearings, will live to regret their action. We can recall when samples of Ceara rubber from Ceylon realized 4s per lb., and now that we are on the eve of a revolution in the means of "harvesting" the crop, as well as of separating the caoutchouc, we say that every man who owns a rubber-yielding tree, whatever be the species, ought to carefully conserve it. In January, 1898, Mr. Willis told the world that the only important rubber for Ceylon was the "Para," and at the time he was, no doubt, acting up to the best light. But a good deal has been learned since; and in his Circular of April last, facts and figures are given to show that preference should be given to the Mexican or Panama *Castilloa* tree. Now we have not a word to say against this preference, nor do we fail to recognise the special importance of the invention of Messrs. Howard and Biffen in their "Caoutchouc Separator" as still further demonstrated, if not improved, by Mr. Hart of Trinidad. But while lately compiling from available literature for our "All About Rubber" Manual, we have been much struck with information reproduced in our own *Tropical Agriculturist* so far back as December last, which attracted too little attention at the time. From it we learn that, among other inventions or experimental applications on the *tapis*, is ONE FOR EXTRACTING CAOUTCHOUC PROFITABLY FROM THE YOUNG STEMS OF RUBBER-YIELDING TREES; AND WE VENTURE TO INFER THAT, ULTIMATELY, YOUNG TREES OF CEARA, PARA OR CASTILLOA MAY ALL BE FOUND AVAILABLE FOR THIS PURPOSE. Surely here we have the elements of a great revolution in Rubber cultivation? In case we may be supposed to write without chapter and verse, we refer to the article in the *Tropical Agriculturist* for December last entitled "Some Recent Developments in Rubber Cultivation," and we quote the writer as follows, prêmising that so far he gives the preference to young Castilloa trees:—

During a trip of several months through the old rubber-producing regions of Central America and the northern states of South America, I found a great interest in rubber cultivation, and preparations were being made to start very considerable undertakings, particularly in the British West Indies, where the fact that rubber never has been indigenous to those islands is not considered in the enthusiasm of the people. On the island of Trinidad I found this enthusiasm increased to a substantial boom. Rubber seeds were selling at five cents each, and young trees were wanted at fifty cents, through owners were refusing to sell year-old trees about two feet high for less than a dollar a piece. It was reported that two English companies were about to begin operations in Trinidad and were proposing to invest a combined capital of $5,000,000, while private enterprise would probably brings $2,000,000 more to the island, making a total of $7,000,000 prospective capital to be invested in that one locality. Other islands were becoming interested. In Grenada seeds were in demand with the prospect that a very considerable acreage will be set out.

The most interesting point under discussion in relation to rubber-planting in the British West Indies is a series of experiments now being carried on in London and Trinidad, by which it is proposed to secure rubber from year-old trees of the *Castilloa elastica*. It has been found that seeds sown broadcast over a prepared field will yield an abundant crop of young trees, which at about a year old can be cut and sent to a factory where, with ordinary machinery operating a simple process, 8 per cent. of fine rubber can be extracted from the young shoots. This can be done in the laboratory. It is claimed that the process is a simple one, that but little machinery is necessary, and that in future the world's rubber supply will be secured from an annual crop of young trees sown on cultivated estates, and not from remote forests at present. A series of experiments has shown that the young tree contains about 8 per cent. of rubber, which would at present prices return an estimated profit of $200 to $400 per acre. The extraction of rubber from young shoots has been accomplished chemically in the laboratory, but whether it can be applied to the economic production of ruubber on a large scale remains to be seen.

And then the writer goes on to discuss the conditions under which "Castilloa" will grow. Every planter and merchant interested should read the paper in full, and decide whether we may not be on the eve of a boom in Rubber planting after the fashion of cinchona in the early "eighties"; but, we trust, with better results. Of course, the advice so far is to sow broadcast Castilloa seeds; but we cannot at all believe that the experiments dealing with year-old twigs of that variety, may not ultimately be extended to other varieties —not only to Para, but to the despised Ceara; and as we said above, we may shortly find branches or bark from every rubber-yielding tree or plant—even from many of our indigenous Ceylon species —in demand in connection with the very important experiments now being made in London and Trinidad—not only to separate the Caoutchouc from the milk, but to extract Rubber from the stems. True, this is only said to be realized so far from the stems of young Castilloa trees; but we cannot but anticipate a far wider application of the experiments ere long. Meantime, therefore, let all who can, plant Castilloa seed; and where that cannot be got, put in Para; and yet again, if such seed is not available, do not hesitate to multiply Ceara if the opportunity offer, rather than have no rubber trees at all; and very soon we shall see—what we shall see—possibly a demand for the stems of all three of these rubber-yielding trees.

RUBBER CULTIVATION IN CEYLON: PARA *versus* CASTILLOA;

CEYLON *versus* THE STRAITS.

Dear Sir,—In reply to your enquiry as to the relative merits of Castilloa and Para Rubber cultivation in Ceylon, I think, and always have thought, that the former is adapted to a wider stretch of country than Para, and it will moreover grow and flourish at a much higher elevation; but the tree (in Ceylon at all events) is slow in developing, requires a good soil, and seed is very difficult to get: in fact unless a quantity can be imported into the country, it will be a long time before we have any appreciable acreage of this class of rubber growing here. I doubt, if there are more than 50 or 60 full-grown trees in the island at the present time, and it is only *some* of these that bear fruit. Those in the Peradeniya Gardens, for instance, though well matured, I am informed, give no seed. What Mr. Willis says about Para rubber growing in Ceylon may be briefly summarized thus:—

(1). That there is only a limited area available for its successful cultivation, probably about *10,000* acres in all; the land being situated between Kalutara and Ratnapura.

(2). If planted outside this zone, the trees, although they may grow well and develope a good girth, are not likely to yield a sufficient quantity of rubber to make the industry a remunerative one by itself.

(3). That the tree will do very much better in the Straits than in Ceylon, both as regards growth and productiveness.

As regards the area available for Para cultivation in Ceylon, I am inclined to agree with Mr. Willis that it is not very extensive if the *best* results are expected, and there is no doubt that well-grown trees in the locality he speaks of will produce very much better returns than in less favoured districts where the rainfall is deficient and the soil inferior. Experiments I have made fully bear this out: the yield from trees of varying ages in the Kalutara district being largely in excess of what would be expected in a drier climate. But when Mr. Willis implies that we must not look for a satisfactory yield *outside* this zone, I join issue with him at once and inquire how about Heneratgoda and the trees that have been tapped there?

Here we have a dry, hard, cabooky soil with a scanty rainfall,—conditions altogether unfavourable for such cultivation,—and yet the trees are well grown for their age and according to the published returns the tappings have been successful, both as regards the quantity and quality of the produce. The prospects of Para cultivation in Ceylon have been based exclusively on data supplied from Heneratgoda Gardens, and it says a good deal for the future of the enterprise that the returns should have been so satisfactory, seeing that according to Mr. Willis the trees are growing in a neighbourhood which may be described as wholly unsuited to their requirements. I have always myself thought it a great pity that the Heneratgoda Gardens were chosen as a home for the Para trees, for the reason that amidst such surroundings it seemed almost impossible that results could be otherwise than unsatisfactory. The published records of the yield, however, shew to the surprise of everybody, a very good margin for profit, even if the price of rubber were to fall considerably below present quotations; and in more favoured localities, there is every reason to be well satisfied with the prospects of the enterprise.

I agree with Mr. Willis that the tree might be planted with advantage through fields of tea, and I am of opinion also that if placed at wide distances apart, the shade would be beneficial rather than otherwise to the tea underneath, but the trees would have to be kept well lopped up.

The statement made by Mr. Willis that Para rubber can be grown to better advantage in the Straits than in Ceylon applies to many other Products besides Rubber, and if we are to wait until we find something that will produce better results in Ceylon than anywhere else we shall have to wait for a very long time.

Take Rice, for instance. Is this cultivation to be discouraged because it grows better in India and Burma than it does here?

Are we to cease growing Cacao because the trees give better returns in the West Indies?

Is the cultivation of Tea to be discontinued because we cannot get the flavour of Darjeeling or the strength of Assam?

In Ceylon we have labour and transport facilities which counterbalance to a great extent the drawbacks associated with an inferior soil and, what we are chiefly concerned in knowing, is not whether tropical products can be cultivated to greater advantage in other countries, but whether there is a fair prospect of making them remunerative here.

In the case of Para rubber the only figures that have as yet been made public in Ceylon go to shew that satisfactory returns can be obtained from trees growing under all the disadvantages of soil and climate, and such being the case the presumption is that very much better results may be expected when the trees that have been planted in other parts of the country have reached full maturity.

I have figures at my disposal which point to excellent returns from this cultivation; but in view of the fact that more extensive tappings are now in progress it may be well to withhold these statistics in the meantime, though in due course the information may be imparted to those interested in the cultivation of Rubber in Ceylon.

The yield from Rubber trees in the Straits is considerably in excess of the best returns in Ceylon; but as a set-off against this, labour is twice as expensive there as it is here; and there are other disadvantages to contend with, though none that are very serious so far as I am aware.—Yours faithfully,

E. S. G.

Australian Produce for the Rand.—The *Leader* announces the arrival of a refrigerator car from Durban with the first consignment of Australian and Tasmanian apples. They arrived in first-class condition, as also a quantity of pasteurised Australian butter, rolled hams and rolled bacon, sugar cured, cheeses, cakes from Swallow and Ariel, and preserved rabbits from the Flemington works.

THE TEA AND PRODUCE COMMITTEE.

REPORT.

The Committee has held four meetings during the year.

The first subject brought under notice of the Committee was the proposal for the reduetion or abolition of the duty on tea imported into the United Kingdom. A Joint Committee was appointed to consider the matter, consisting of three members of the Indian Tea Association (London) and three members of this Committee, Messrs. W. H. Anderson, H. Bois and H. K. Rutherford. But in view of the opinion, expressed by the Committee of the Planters' Assoeiation of Ceylon, that it was not desirable at the present time to press for the proposed relief it was decided to postpone any action.

A correspondenee took place with the Postmaster-General as to the rates of postage and the limits of weight for samples of Tea posted between London and Ceylon, but no modification of the rules was obtained.

The Indian Tea Assoeiation (London) submitted to the Committee certain proposals for changing the conditions of Public Sales of Tea. The chief of these was the reduction of the biddings at Sales up to 6½d from ½d to ¼d, but the proposed alteration did not meet with the approval of the Committee. A new seale for deposits, payable on the purchases of Tea at Publie Sales, was approved by the Committee, but it has not yet been adopted in practice.

An attempt was made without success to obtain a reduction of the very high rates of freight ruling for Tea and other Produce between Colombo and the Australian ports.

In connection with the Indian Tea Association (London) a circular has been issued to all Producers and Importers of Tea, inviting assent to the proposed abolition of the allowanee of 1 lb. draft on each package of Tea solsold at Publie Sales. A large number of assents has already been received, and it is hoped that there may be sufficient support to enable the reform to be shortly earried into effeet.

The great improvement in the statistical position of tea during the year, as giving hope of a more prosperous time in the near future, is matter for congratulaton to all coneerned.

GREAT WESTERN TEA COMPANY OF CEYLON.

DIRECTORS' REPORT.

The report of the direetors was submitted as follows:—

The Directors submit their Annual Report and Accounts for the Season ending 31st March, 1899.

The yield of Tea during the Season has been only 313,425 lb. (including a balance of 135 lb. from the previous Season) being a decrease of 145,728 lb. on last Season's crop.

This is due partly to the unfavourable Season which adversely affected the yield of all Ceylon Estates and partly to more careful plucking—the Tea averaging 48·15 cents per lb. against 40·27 cents in 1897--98—and partly to the necessity of nursing some of the fields which were suffering from previous overplucking.

The cost F. O. B. Colombo is 35·98 cents per lb. (including 3·56 cents for manuring) against 30·13 cents the previous Season, showing a profit on cultivation of 12 17 cents against 10·14 cents last Season.

The amount received under the Loss-of-Profit Policy effected over the Factory was R21,840·75 of which R13,184·46 (representing the additional cost of outside manufacture and transport caused by the destruction of the Factory) has been deducted from the Expenditure of last Season and this, and the balance R8,656·29 (taken as a set-off against the loss entailed in quality) has been passed to credit of Profit and Loss Account.

The amount available for distribution is thus R45,376·88, out of which the Directors recommend the payment of a Dividend of 6½ per cent, absorbing R37,960·00, and in view of the present cost of and difficulty of obtaining firewood, and the need for the erection of other motive power, they recommend the carrying forward the balance R7,416·88.

The estimated crop for the current Season is 400,000 lbs. and the expenditure not including that on Capital Account R124,404·15 being at the rate of 31·10 cents per lb. tea inclusive of 3·06 cents per lb. for manuring.

In terms of the Articles of Association Mr. G. F. Walker retires by rotation, and being eligible offers himself for re-election.

PLANTING (TEA AND COFFEE) IN THE PHILLIPINES.

MR. T. H. STEPHENS, well-known here and who is praetising his profession as dentist in Manilla, sends us some planting information and in return we are glad to mention that Mr. Stephens says "he ean get land eheap for anyone requiring it in the Philippines." He himself is introducing tea there; but he believes in coffee as well. From a loeal paper we quote the following aceount of what reads like a planting Eldorado:—

Mr. Donaldson-Sim finds that Benguet is a splendid place for plantations. He has over 8,000 coffee trees bearing excellently, besides some 30,000 tea seedlings and some 3,000 full-grown tea plants, bearing well and ready for picking. He has one of the best plantations in northern Luzon. He has practically no neighbors, that is to say, there is no other plantation anywhere near his, and the nearest village is about four or five miles away. His plaee is several hundred feet higher than the village, and is 4,600 feet above sea-level. He has done a good deal of experimental planting with other things with results so promising that the vexation of having the province overrun with armed lunatics, stopping all work, destroying all business, damaging all property and putting an end to every plan and scheme, is disheartening enough to drive a man mad. There is nothing to rebel about in Benguet, and the Benguet people themselves have no desire to rebel. They have nobody to rebel against and there would have been no disturbance at all if the Aguinaldists would only let people live and attend to their business in peaee.

Benguet is believed to be the riehest province in the Philippines for gold. There are native gold workings all over the province, the natives only working alluvial, but there is also quartz gold. The province is also rich in iron, copper and silver mines. It has some splendid mineral springs, especially at the village of Itogon and in Tublai in the north of the province. Benguet is partly wooded over with magnifieent pine forests as good as Norway pine, and very fine quality of wood, and the remainder of the province, probably about a half at a rough guess, is open pasture land. It is difficult to estimate how much is wood and how much is open because it is all in patches here and there. The pasture land is excellent, and horses and cows thrive better there than in any other part of the island. Most of the hills are fairly gentle, undulating slopes, not precipitous to any great extent. Cattle and ponies, fine, large animals, are very cheap in Benguet.

What about labour we would ask, and its eost?—also rainfall? Mr. Stephens knows that the unsettlement eaused by mining is not favourable to planters and their work.

COCONUT OIL AND COPRA.

The section devoted to Coconuts in the Kelani Valley Commissioner's Report contains without doubt some valuahle information on the subject, hut our attention has been drawn to certain averages which are apparently contradictory *e.g.*, that 1,000 nuts is a safe average of the number required to produce one candy (560 lh. or 5 cwt.) of copra, and copra contains 2-3rd oil and ⅓ poonac: while 36 nuts is a safe average to calculate for a gallon of oil. And further that according to the usual calculation 2 nuts=1 lb. copra. Now adopting these figures, as one correspondent points out, we arrive at curious results. On the basis that 1,000 nuts will give a candy of copra, we find that 3,000 nuts should give 15 cwt. copra, and that this ought to produce 10 cwt. oil and 5 cwt. poonac. But then 15 cwt. copra=1,680 lb., which at two nuts to the lb. would require 3,360 nuts for its production. Again, if 36 nuts are required for one gallon oil, the number reqnired for 10 cwt. (125 gallons) would be 4,500 nuts. So that we thus have as a result of the calculation based on the above averages the unsatisfactory result that 10 cwt. of oil would require 3,000, or 3,360 or 4,500 nuts (as the case might be).

Another calculation gives an acre yielding 3,000 nuts as producing only 6 cwt. oil and 3 cwt. poonac, which is put down as equivalent to (not 9 cwt. but) 14½ to 15 cwt. copra. But how is the difference accounted for? Putting aside these figures for the present, we should like to know what test is adopted in the trade for ascertaining the percentage of oil in purchased copra, or is it merely judged "by the eye?"

Turning to Mr. Cochran's Manual of Chemical Analysis, we find that the percentage of oil in copra may vary from 63 to 70 per cent, and the moisture from 2 to 7 per cent. If there is no means of judging of these variations in a practical way, and if copra is bought hy weight, there is surely ample opportunity for finessing on the part of sellers.—*Agricultural Magazine.*

[We suppose the process is one of "give and take" as it is in so many departments of marketable produce—some men like Mr. George Hedges in the case of 'native coffee,' have an instinctive faculty or long-trained experience to aid them in discovering the true value of what is offered.—But what is the use of arguing over so variable a quantity as a coconut: 1,000 of one size will give 560 lb. of copra, while it may require 1,600 of smaller nuts to do the same.—Ed. *T.A.*]

THE FOOCHOW TEA TRADE.

Foochow, May 27.—Business in the new seasons tea commenced on the 23rd inst. (following some early shipments of Pakling Congou as usual and a few contract chops of Panyong) and buying has gone on steadily since. The settlements to date are reported at 40,000 half-chests Congou and 3,600 chests Flowery Pekoe. The "Glaucus" calling in today for brick tea will also take about 1,100 tons of the new leaf for London. The "Glenshiel" is advertised to clear on the 2nd prox., the "Ceylon" a week later, and the "Kintuck" about the 12th. There is a rumour that the "Java" is to call on the 29th inst., but she has not yet been circulated. The "Stobherg" is to take the berth for Havre and Hamburg.

We learn that on the opening of the port of San-tu-ao it was intended that the teas of the Panyong and Paklum districts should bo brought to this market by steamers, hut that the dissatisfaction and discontent of the small army of natives hitherto employed in carrying the tea to Foochow was so great that the new method of conveyance had to be abandoned for tho time being at any rate. Tho tea could not he left there to lose its market while a settlement with theso good people was being come to and so the teamen had to give in, but no doubt some arrangement will be made later on. The notice given to the carriers was probably too short and it was only natural that they kicked at being suddenly deprived of their livelihood.—*Echo.*

CEYLON TEA AT SYDNEY.

Messrs. Alfred Harvey and Co. offered a catalogue of 758 Ceylons on account of Dalgety and Co., Ltd., of which they sold 648. Price teas sold at fair current rates, demand being strong for lower grades. Low to fair broken Pekoes, although a shade easier in price, were really unaltered, taking quality into consideration. Finer grades were neglected, and passed in. Pekoe Souchongs realised from 7¾d to 8d, Pekoes 8½d, and broken Pekoes 8¾d to 10d.

Messrs. H. W. Carey and Co. offered an assorted catalogue of China, Ceylon, and Indian teas, under instructions from Messrs. Gibbs, Bright, and Co., and other importers, at the Exchange yesterday afternoon. For the bulk of the Ceylons, which consisted of high-grade Orange Pekoes, biddings were much below vendors' limits to be accepted; for the Chinas and Indians also vendors' limits could only be partially compassed, but, in the face of cabled advices from producing centres, holders were not prepared to sacrifice. 150 Ceylons changed hands under the hammer at 9d to 10½d per lb., and 150 China Congous at 6¼d to 6½d per lb. in bond.—*Sydney Daily Telegraph*, May 27.

THE INDIAN TEA ASSOCIATION.

A meeting of the General Commitee of the Indian Tea Association was held at the Royal Exchange Buildings, Calcutta, last week. There were present:—Messrs. H S Ashton, H C Begg, W Brown, R Magor, G A Ormiston, M R Quin, A Tocher, R R Toynhee, and T Traill. On the motion of Mr. Begg, Mr. Ashton was unanimously elected Chairman of the Association for the year 1899-1900. Mr. Ashton, having taken the chair, proposed that Mr. Begg be elected Vice-Chairmau for the year. This was seconded by Mr. Tocher, and was carried unanimously.

Ocean Freights.—The average rate obtained by the Conference during the last four years from Calcutta was 27s 6d per ton net, while the average rate from Colombo for about the same period was 23s 8d, which, in the opinion of the Conference, showed that the figures of comparison as between the two ports, which had been adopted hy the Association, were fallacious. It was also impossible, with any fairness to compare the rates of freight from Colombo with those from Calcutta on a mileage basis. Moreover, Colombo was one of the cheapest, and Calcutta one of the dearest, ports in the world, and rates of freight on tea from any part of the world must be assimilated to the current general rate in that particular locality. The Confereuce consequently declined to make any change in the existing rates. The General Committee discussed this letter to some length. It was decided to await further information as to what action the Committee of the Association in London proposed to take in the matter, and meanwhile, to circulate the papers to the members of the Committee for further consideration.

One Pound Draft Allowance of Tea Sales.—With his letter of the 28th April, Mr. Tye forwarded copies of a joint circular issued in London by the Indian Tea Association and the Ceylon Association, asking support to a proposal to abolish the 1 lb. draft allowance on teas sold at public auction in London. This circular had been reprinted in Calcutta and issued to all members of the Association. The proposal was strongly supported by the General Committee, and a number of favourable replies had been received. These were to be forwarded to London in due course. It was understood that support had been received in London to the extent of 83,880,500 lh. of Indian, and 29,702,000 lb. of Ceylon, tea up to the time of writing.

The Paris Exhibition.—Considered (1) letter of 21st ultimo for the Hony. Secy. Nilgiri Planters' Association, asking whether a coffee room could be run in connection with the proposed Indian tea room at the Paris Exhibition, and the probable expense of so doing; (2) letter of the 26th ultimo from the Secretary, United Planters' Association of Southern

India, stating that that body had been informed by the Madras Government that the Government of India was prepared to allot space to the Indian Tea Association and to the United Planters' Association for an adequate exhibition of tea and coffee at the Paris Exhibition. The Government of India also suggested that should the two Associations desire to avail themselves of the offer, the arrangements might be most conveniently carried out by a Central Committee working in London. The Planters, Association wished to act as far as possible in concert with the Indian Tea Association, and it was asked in the letter if any definite plan of action had been formulated. They were also desirous that a coffee room should be opened in co-operation with the tea room. After some discussion, it was decided to forward copies of both the letters quoted to the Committee of the Association in London for their information in connection with the arrangements being made. It was also decided to write the United Planters' Association to the effect that the General Committee were not yet in a position to state definitely what arrangements would finally be made for the representation of Indian tea, or whether the Committee in London could work in conjunction with the representatives of the coffee industry if the latter desired to exhibit. It was also to be suggested to the United Planters' Association that they should put themselves in communication with the Indian Tea Association, London, stating the amount of money they were prepared to spend in connection with the Exhibition and the space desired for both tea and coffee. The Nilgiri Planters' Association were to be informed in reply to their letter, that the matter had been brought to the notice of the General Committee by the United Planters' Association to which body they were to be referred.—*Madras Mail*, June 13.

THE STOWAGE OF OIL.

The last subject was to present the report of the special committee appointed to consider the question of stowage of oil in steamers loading in Ceylon, which we published in our last issue.

APPROVED OF BY THE CEYLON CHAMBER OF COMMERCE FOR THE GUIDANCE OF CAPTAINS AND STEVEDORES OF STEAMERS LOADING IN CEYLON.

I. General Rules.—A solid level to be laid in ship's hold for the ground tier where coconut oil is shipped. The tier to be well bedded and quarter coigned, and a strict cantline to be observed.

Wings of bottom tier to be made up with dunnage wood. No small packages to be stowed in the wings, unless they can be protected from the weight of the next and following tiers above. This can be done by having uprights in wing, and strong cross-beds to rest on.

It is permissible to stow plumbago over oil, but not oil over plumbago.

Top tier in lower hold and top tier in 'tween decks must be well chocked and wedged off to prevent shifting. *This rule should have particular attention.* No packages to be stowed athwart-ship except in top tier.

Vessels without 'tween decks must lay one or a platform with 2" hardwood planks not more than 6" apart.

Copra, jaggery, dates, and other cargo throwing off heat must not be stowed in proximity to oil, as this is sure to lead to leakage by the heat shrinking the wood of the packages and expanding the hoops and oil. Termeric, ginger, pepper, &c., should be well dunnaged off, so as to prevent contact with oil packages.

II. Coconut Oil Packages to be well bedded and coigned, and a strict cantline and tier to be kept.

Casks must be well chocked off with dunnage wood and be stowed bung-up and bilge free. No more than 4 tiers of pipes to be allowed without an intervening platform as described above. No packages to be stowed athwart-ship except in top tier.

III. Plumbago.—When commencing to stow plumbago on oil a perfect level should first be made with dunnage so as to form a platform. The barrels to be stowed in square tiers full bilge and cantline, and to be well bedded in the first tier.

Particular care should be taken that the barrels are stowed in such a manner that the head staves are perpendicular.

Old sails and (or) mats to be put under the plumbago so as to enable the discharging Stevedore to readily collect sweepings from leakage and broken barrels. No more than three tiers with oil, and five tiers where no oil, to be allowed without an intervening deck, and no barrels to be stowed athwart-ship except in top tier, and then only to make a chock.

IV. Essential Oil should be stowed away from any cargo liable to be affected by smell.

V. Dunnage Wood to be used in sufficient quantity to properly bed, chock, and secure cargo so as to prevent any possibility of shifting.

VI. Ventilation requires particular attention of Captains. If properly carried out by removing fore and aft hatch in cool and fine weather, it will chill the oil and prevent all leakage. Coconut oil will congeal at a temperature of 60° F.

VII. Packages in Bad Order and showing signs of leakage should not be stowed away until properly attended to by shipper's coopers. If the defect be serious and cannot be repaired on board, the package must be returned without delay.

Chamber of Commerce, Colombo, 1st June, 1889.

COPRA.

Samoa.—During the last quarter of 1898 no invoices were issued at this consulate. Upon inquiry, I find that the contract of the German firm with the San Francisco merchant has terminated, and that a fair price for the commodity cannot be obtained in the United States. I am informed that only a trifle more than the cost of the copra at this place can be obtained at San Francisco. During the last year, Lever Brothers, of Sydney, had an agent here, and competition was sharp. By the last steamer the agent was notified that he was no longer needed, and that they had constituted the German firm their sole agents. This indicates that the entire product of the islands will from this time go to the colonies or to Europe. Rates between San Francisco and Samoa have been such that most American commodities consumed here are sent to Sydney, and thence 2,800 miles to Apia, and delivered here much cheaper than they could be obtained direct from San Francisco. The tariff direct from San Francisco is $16 per marine ton, and from Vancouver to Sydney $6 per ton. Possibly some arrangement could be made by which could be sent to Vancouver and thence to Fiji, and then here by the interisland boats, which to some extent would relieve this place from the excessive rates from San Francisco.—*United States Consul at Apia.*

SOUTH MYSORE PLANTERS' ASSOCIATION.

The annual general meeting was held at Munzerabad Club, Saklaspur, on the 30th ultimo; and from a speech of Mr. A.R. Park (President), we quote:—

"It is my pleasant duty to report that the somewhat gloomy forebodings expressed early in the year have not been realised, and that the season, on the whole, has been a moderately good one. The advices of sales of East India that have reached us indicate a depressed state of the market, which, owing to the increasing production in different parts of the world, seems likely to continue for some time. The cardamom crop was above average, but prices were lower, ruling from R50 to R60 per maund. Leaf disease has been less prevalent than for some years past. Crop prospects for the coming year are favorable, and the rain which fell in February has not on the whole been prejudicial."

Agricultural Chemist.—The out come of the various discussions that have taken place, as far as Mysore is concernned, is the appointment of Dr. Lehmann, the Dewan exhibiting in the matter his accustomed liberal-mindedness. All those who are interested in agriculture cannot fail to be gratified at the appointment of so highly qualified a Chemist, and I hope shortly we may learn what course the Durbar intend pursuing as regards his work. Meanwhile he has lost no time in showing a desire to become acquainted with the local circumstances, as is seen by his present visit to this district.

Forests.—I have written to the Chief Conservator of Forests to enquire if grants ot land for cardamom cultivation have been made in the forests of Kubbenhully, Bisleh and Kemphully, and await his reply.

Mr. Park was elected, President, and Mr. Playfair, Honorary Secretary.

MINOR PRODUCTS.

From Messrs. Schimmel & Co.'s "Semi-Annual Report," (April 1899) we take the following:—

Cinnamon Oil, Ceylon—The Cinnamon market has settled down somewhat during recentmonths, but the prices still remain high. The transactoins in cinnamon chips, the material used for the distillation of the oil, have surpassed any former oues. In 1898: 1,414,165 lb have been shipped, against 1,067,051 in 1897. The chips reached the highest price at 4d per lb, and since several months have brought 3¼d to 3½d per lb at Hamburg. The above figures show that Germany is now rauging at the head in the consumption of this commodity. Ceylon cinnamon oil is a speciality of our firm.

Citronella Oil.—The transactions iu this article have again considerably increased in 1898. The export from Colombo and Galle (Ceylon) reached the as yet greatest maximum figure, namely 1,365,917 lb. The distribution figures, however, do not exactly indicate the real consuming countries, for a considerable part of the oil destined for Germany and France only passes through England in transit. In our estimate Germany consumes at least 220,000 lb, or about one sixth of the entire production. A recent paper on the production of citronella oil, published in the October number (1898) of the *Tropical Agriculturist*, agrees in the principle points with the iuformation given in our Reports of October 1898. Two kiuds of citronella grass, *Maha pangiri* and *Lenabatu pangiri* are said to serve for distillation. The former is hardly cultivated any longer, while the latter was little known twenty-five years ago. *Maha pangiri* is said to be richer in oil but to perish after a cultivation for ten to fifteeu years. The cultivation of citronella grass and tbe distillation of the oil are now sufficiently well known so that every one interested in them can readily obtain all desired iuformation. The well known simple and reliable method testing the oil, elaborated by us and called "Schimmel's test," meets with approval and success. The proper rejoinder to some objections raised against it may be found on pages 16 and 17 of our October Report of 1898. Our test is in every respect as reliable as it is practical and deserving of full confidence and general application. A first shipment of citronella oil from a new plantation and distillery from Java, amounting to about 300 kilos, is on its way to us. Preliminary specimens which have reached us indicate an oil of superior quality of a very light colour and high percentage of geraniol. We must, however, defer our final estimate until the arrival of the gross lot. According to a recent statement in No. 986 of the *Chemist and Druggist* (London) a syndicate of Arabs has purchased a considerable area in Queenland for tbe purpose of raising citronella grass for distillation.

Geranium Oil.—Tbe cultivation of geraniuim has been considerably extended in Algiers aud as an additional explanation of the steady decline of values it is claimed that a greater yield of oil is obtained in consequence of better methods of raising the plants aud distilling the material. As far as we have been informed about the geranium production and the appointments for distillation, they by no means excell by perfection. The price of the oil is a low oue in consequence of overproduction. Réunion oil, formerly much in favour; has become less in demand because it renders unsatisfactory results with transparant soaps. In view of the slight difference in price, African oil is preferred. The geranium cultivation on Réunion, moreover has experienced a considerable reduction, since the plantation of vanila has proved more remunerative and surer of profitable disposal. Our supplies of East Indian oil of geranium (Palmarosa oil) have arrived and are of excellent quality. Upon several estimates they contain 92 per cent of geraniol. The price of the oil is normal and no reduction is to be expected. We also have a fresh supply of the exceedingly fine Spanish oil.—[Could not Geraniums on estates up-country be utilised for oil?—Ed. *C.O.*]

Lemongrass Oil.—In this article normal values have finally retnrned. Quotations in China vary between 2¼d to 2¾d per onnce, and transactions are said to be very dull, because large stocks are still laid up in Loudon, checking any speculative tendency.

BUDDING MANGOES.

Mr. R. Bunnage, of Gracemere, Queensland, has successfully budded two mango-trees, and one of these has borne fruit for the past two seasons. The other, although the buds have uuited properly, has not yet begun to bear. The tree to be budded should be in full growth, and all the youug wood should be taken off, but sufficient must be left to afford shade for the buds. The operation is best carried ont in dull weather, and the buds shonld not be too far advanced. As soon as the tree is budded, all other growth mnst be taken off as it occurs, or the buds will not take.

On this subject Mr. A. H. Benson says:—"I note with interest that Mr. Bunuage has been successful in budding the mango, and agree with him that for the operation to be successful the tree to be budded must be in full growth. I should not, however, consider it advisable to cut back the tree that is to be budded before the union of the bud and stock has taken place, as there would be a dauger of flooding tbe bud with too much sap, and consequently preventing a union. I have seen a mango-tree successfully budded in Mackay, and have succeeded in budding young seedling mango-trees myself. Unlike Mr. Bunnage, I would prefer the buds to be plump and fully developed; in fact, just ready to start into growth."—*Queensland Agricultural Journal.*

International Scientific Bureau.—Correspondence that has taken place between the Hon. Secretary of the Asiatic Society of Bengal and the Ceylon Government has been published regarding the subject of an international catalogue of scientific literature proposed by the Royal Society of London and the share Ceylon will take in the matter. Steps are being taken by the Ceylon Government to carry out the scheme and copies of the correspondence have been forwarded to the Secretary of the Ceylon Branch of the Royal Asiatic Society and the President of the Medical Association Ceylon. What Ceylon as well as India is requested to do is (*a*) to direct the heads of all Departments issuing publications, of which any of the contents come within the scope of the Royal Society's Catalogue, to supply to the Asiatic Society "index slips" prepared in accordance with the scheme finally adopted by the Royal Society; (*b*) to instruct all local Governments and Administrations—to supply to the Asiatic Society periodical lists of all Scientific and Literary Societies established within their jurisdiction, and periodical lists of all books published within their jurisdiction

THE PROPOSED ABOLITION OF THE DRAFT POUND.

To the Editor of the Home and Colonial Mail.

Sir,—As the pound draft question is being debated now, I venture to suggest an alternative method of getting over the difficulty. The importers say "that the profits are so small that it is imperative to curtail every item of expenditure to the very lowest limits." And as there are various other items of expenditure on an average chest of Indian or Ceylon tea (worth, say, 8d per lb), it seems to me that, before interfering with an old trade custom, and raising another very serious controversy with the buyers of tea, it might be possible to apply the pruning knife first to such items as :

	Per chest.	
	s.	d.
Shipping charges and freight	4	0
Warehouse charges and insurance	3	8½
Calcutta agency commission	1	6
London agency commission	1	9
Brokerage and public sale charges	0	½
	11	

Now, the average saving to be effected by withholding the draft pound would only amount to 8d, and it seems to me that before levying all the tax on the retail tea dealer, it would be more productive to squeeze a little off the Calcutta and London agents, who seem to enjoy rather an undue share, in consideration of the amount of work they have to do.—I am, &c., A Tea Dealer.

IMPORTANT TO THE TEA TRADE.

We understand that a very determined effort will shortly be made to abolish the one pound draft allowed from time immemorial on chests and half chests of tea. In 1870 a similar attempt was made to carry out the same object, but, owing to the active efforts made by the leading wholesale and retail traders, the project was completely defeated, and the subject has not been raised for nearly thirty years. With similar energy on the part of the dealers there is no reason why they should not be equally successful in resisting the present attempt to deprive the trade of their legitimate rights.

It is well-known that teas are now weighed much closer than was the case a few years ago, and the experience of dealers is that, even allowing for the one pound draft, the net weight of tea contained in many packages is less than that actually paid for. Moreover, the trade has long suffered serious loss and inconvenience from the inefficient manner in which teas are bulked in London. Indeed, in many cases, it is well-known that importers instruct their warehouse keepers not to bulk their teas at all, trusting to luck that no complaint will be made by the buyer, and this, notwithstanding the fact that all catalogues state that "These teas have been weighed, inspected, and bulked" (in the country of production or London). In fairness to the better known companies it should, however, be stated that these latter remarks do not apply, as most of the teas from their estates are properly bulked at the place of growth. Still, the evil is an important, and, we fear, an increasing one, as far more complaints are now made with regard to the matter than was formerly the case. Meanwhile, we hope that immediate steps will be taken for opposing the proposal to abolish the one pound draft, and our columns, as on the previous occasion, are open for the free ventilation of this important subject.

On reading through the discussions which took place in 1870, nothing can be more clear than the fact that this draft was not allowed for loss of weight only, but was intended to cover all sorts of other contingencies arising from the nature of the trade, such as the occasional refusal of any allowance for damage, false package, &c., after delivery from the public warehouses. Of course, also buying at original landed weights, the trade accept a great risk when delivery is delayed, as it often is, and they must have some margin in return.—*Produce Market*, May 20.

INDIAN PATENT.

Applications for the under specified inventions have been made:—

No. 133.—Samuel Cleland Davidson, merchant, of Sirocco Engineering Works, Belfast, Ireland. Improvements in means of supporting the bearings of spindles or shafts in wall brackets or frames.

No 134.—Samuel Cleland Davidson, merchant, of Sirocco Engineering Words, Belfast, Ireland. Improvements in centrifugal fans and pumps.

No. 165.—William Jackson, Engineer, of Thorn Grove, Mannofield, Aberdeen, North Britain. Improvements in apparatus for sifting, sorting and classifying tea or other products or materials.—*Indian and Eastern Engineer.*

Ceylon Tea in America.—In our daily and *Tropical Agriculturist* will be found a good deal on this subject: Mr. Mackenzie reports progress and Mr. R. E. Pineo, at some length, discusses the need of extending as well as continuing the American campaign. "Advertising" is the burden of Mr. Pineo's advice and well pleased we are to follow him, until we come to the point where we learn that he would exclude advertising in the daily newspapers! "O lame and impotent conclusion," and yet it is true that the "dailies" are not regarded in the States as they are in British territory—and yet these papers must be read? If so, we believe it should pay well for the Ceylon Commissioner to make a contract in a few prominent dailies for a really conspicuous but concise intimation, such as "Drink Pure Ceylon Tea." It is all nonsense to say such would not eventually tell and if it is not the custom to advertise in dailies, the charge should be all the more moderate Mr. Pineo believes in "Demonstrations" and rightly so;—but to dvocate an illustrated lecture on our "Buried Cities, " in order to get the Americans to drink Ceylon tae, savours a little of the comical! And yet again, the "sensacional" as well as the "amusing" must be freely used if popular attention is to be attracted across the Atlantic. Still, we should think that a lecturing campaign treating Ceylon on its productive merits—the island of cinnamon, cardamoms, citronella, coconuts, cacao, coffee, coolies and Cinghalese!—adding in its gems, pearls, plumbago, its grand variety of palms and all their wonders and winding up with its TEA, ought to tell. But there cannot be too much of a good thing and certainly the "Buried Cities," if backed by Mr. Cave's illustrations, would prove a capital subject; but would it be quite fair to tag on to it "a tea demonstration"? Mr. Mackenzie should be the best judge.

MATTE TEA.

Brazil.—Curityba is the centre of the "matté" industry, which employs nineteen mills in the town and suburbs. The preparation, though simple, is all done by machinery. The raw material arrives in sacks of about 1 cwt. from the interior. At the mill the leaves and finer stems are separated and ground to dust of various fineness. The thicker stems serve as fuel. The Argentines prefer dust "matté," and as they suck it through a "bombilla" are not inconvenienced by the floating particles; but there is no reason why it should not be prepared in the leaf like tea. The decoction has a greenish colour. The taste is agreeable, but not so aromatic as tea. It is stated that "matté" is peculiarly sustaining; that it is a digestive nerve tonic and cure for sleeplessness. The "Gauchos" of Rio Grande, Uruguay, and Argentina are the chief consumers, and will do a hard day's work with no other nourishment. Mr. David Carneiro, whose mill we visited, employs about thirty men, and when in full work the daily output is between eighty and ninety barrels of about 250 lb. The dried leaves and twigs, as they arrive unprepared from the interior, cost on an average 13 milreis, or 8s. 8d. a cwt., and the price prepared at Curityba averages 23 milreis, or about 15s. 6d a cwt. The retail price at Buenos Ayres varies from 20s to 50s. a cwt. Mr. Carneiro is endeavouring to create a market for "matte" in Europe, and stated that duties, freight, &c., paid, it can be sold in France at 1 fr. a kilo. An agent has already been secured at Paris, and another in London. If "matte" drinking ever becomes popular in Europe, it will be more probably among the labouring classes, on account of its cheapness and sustaining qualities.—*British Legation Report from Rio de Janeiro.*

PRODUCE AND PLANTING.

The Demand for Ceylon Tea in Russia.—The British Consul at Odessa, in his official report, had something very encouraging to say about Ceylon tea. He refers to the increasing consumption, and points out that it is only a few years since it was introduced into Russia, and last year nearly two and three-quarter million pounds of tea were shipped from Ceylon direct to Odessa, against less than half a million pounds in 1897. He points out that teas from China and Ceylon are imported in vessels of the Russian volunteer fleet, which, owing to the low freights charged by those vessels on the homeward voyages, have now practically a monopoly of the tea-carrying trade from the tea ports of China and from Colombo, more especially as now tea imported from the Far East in Russian bottoms has preferential railway rates between Odessa and Moscow. On the other hand, there is a growing purchase by Ceylon of Russian petroleum; in 1897 and 1898 Colombo took over one and a quarter million gallons each year. The Acting Consul-General suggests that Australian firms might avail themselves of the low rates of freight in order to introduce tin, tallow, copra, &c., into Russia. It is said that if these commodities were shipped by Singapore the local agency of the volunteer fleet would undertake their transhipment into Russian vessels on moderate terms.

Draft on Tea Sales.—The following is a copy of a protest signed by practically all the leading wholesale tea firms and many country dealers against the proposals of the Indian and Ceylon Tea Associations in London. Clearly there is to be a strong stand against the abolition of the draft allowance:—"The Secretary, Indian Tea Association, London, May 23, 1899.—Dear Sir,—Our attention has been called to a circular and memorandum, issued by your Association, in conjunction with the Ceylon Association in London, to producers and importers of tea, containing a proposal to abolish the draft allowance on teas sold by public auction in London, and inviting support. In the Memorandum it is stated that it would be to the interest of producers and importers that the proposal should be carried into effect, and that it has the unanimous approval of the committee of the two associations named. As this is a matter affecting, in a very serious way, the interests of the entire wholesale and retail tea trades, we feel that we canno allow the circular to pass without entering a strong protest against the proposal which it contains. In opposition to the very trifling reasons advanced for the suggested alteration may be set a host of long-standing grievances under which those engaged in the tea trade in this country have been labouring for years, without being able to obtain the slightest satisfaction, mainly owing to the most unreasonable conditions of public sale. With regard to paragraph No. 8 in the memorandum, we submit that it is no argument to compare a duty-paid article like tea with bacon and cheese, as in the case of the former there is a very serious loss in the process of handling, sampling, and blending, and then again an additional waste in weighing in ordinary bulk form for general trade. This is accentuated when the retailer requires teas weighed out in small quantities, the total loss being much greater than the trifling and inadequate overdraft which it has hitherto been the custom from time immemorial to allow. Again, there is a regular loss through bad cooperage and broken, inferior lead, the latter resulting in the mixing of chips of wood with the tea, and the loss by percolation in transit. Another ever-present difficulty is that of extracting extraneous matter from teas, more especially nails, which results in considerable loss and inconvenience to dealers. What with cheesy teas, mouldy teas, badly bulked teas, teas smelling strongly of indiarubber, apples, and other foreign substances, inferior returns in sample packages, and various other complaints with which the members of your association must be well acquainted, if the suggestion to remove the last crumb of comfort is carried it will be the duty of the undersigned to take steps to protect their interests in a way which will very much out-balance any benefit which might be gained by the merchants in the abolition of the pound draft, viz., by taking stringent measures to see that the conditions of sale are in every case followed to the letter especially as regards bulking, so as to ensure teas being in every way equal to sale sample. United action will also be taken in an effective way to deal with Clause 5 of the conditions of sale, which in its present form is an utter impossibility to buyers. We request that you will place this letter before your committee for their kind attention, and we remain, yours faithfully," (Here follow the signatures.)

Tea in France.—Following the desire to be up to date as in London, the Parisians are taking rather slowly, it must be admitted, to tea, not as a decoction for invalids, but as a drink to be taken with food. Confectioners are inviting their customers to afternoon tea, and there is at length some prospect of tea becoming popular. Now is the time for developing the French taste for tea, and pushing the Ceylon and Indian product, for most of the tea sold at present in France is indescribably bad and very dear.

Public Sales of Coffee.—The "Grocer" calls attention to a congestion of public sales in coffee, which tends, it points out, to throw everything out of gear, and threatens to bring business in landed parcels of coffee to a deadlock. Complaints, though for the moment suppressed, are not the less urgent and strongly made against the defective arrangements, as they now exist, for disposing of coffee by auction; and the evils resulting from the prevailing system in occasioning delays, loss of time, and postponements of sales, have caused such widespread inconvenience to importers, exporters, and wholesale dealers, that it is admitted by all parties that "something should be done" to remedy the existing state of affairs as speedily as may be, or a complete break-down must occur in the whole commercial machinery for supplying the article to the public. Already this year public sales of coffee in Mincing Lane have been postponed more frequently than ever, entirely because of the excessive quantities put forward on certain

specified days, and it has always been uncertain when and at what hour such and such an auction in a long series would commence and finish. The same kind of chaos and confusion has been repeated during the present week, when, among the brokers's catalogues printed and issued for coffee to be sold under the hammer, were included eleven that contained particulars of parcels and descriptions which had been advertised for public sale on the 12th inst., being nearly a fortnight later than the date originally fixed. At this rate of progress the new season will be far advanced ere the superabundant imports of coffee from the British East Indies, Costa Rica, Guatemala, and other parts of Central America, will be worked off, and the nearer the trade get at the wind-up of the supplies for 1899, the fewer will their chances be of securing precisely the kind of coffee they require to carry their supply over till another year. A healthy competition has prevailed at the different auctions since the earlier part of the season, which fact goes to prove that both dealers and shippers were practically bare of stock at the outset; and as their wants have increased rather than otherwise, the extra buying necessary to replenish the exhausted stores of bonded or duty-paid coffee has lent additional support to the import market. Though the rates submitted to have been unquestionably low for the worst descriptions of coffee, they have been reasonably cheap, if at times uneven, for the middling and intermediate grades; whilst for bright coloury, fancy, and attractive growths of plantation coffee, instead of a reduction a tangible advance has in many cases been seen.

A Suggested Remedy.—A few of the leading members of the coffee trade, with bolder spirits than their fellows, have hinted that Monday, which from ancient custom has been regarded as an "off" day, should in future be given up for the purpose of clearing away to arrears remaining from public auctions held in the preceding week. Some such arrangement would no doubt materially help to bring the average daily supply of coffee within a manageable compass, and greatly facilitate the sale, preparation, and distribution of the article throughout the country; but from what we have heard in influential quarters, says the *Grocer*, so drastic a course of proceeding on the part of brokers and their merchants would be strongly opposed by the wholesale dealers, who would resist to the utmost any encroachment on their Mondays. *H and C Mail*, June 2nd.

CEYLON ASSOCIATION IN LONDON.

REPORT OF THE EXECUTIVE COMMITTEE FOR 1898-1899.

LAID BEFORE THE ELEVENTH ANNUAL GENERAL MEETING, ON 12TH JUNE.

There has been again, as in every previous year, an increase in the numbers on the roll, the present number being 163 as against 159 n 1898.

As foreshadowed in the last report arrangements were made by the Committee for the full statement of the case for Ceylon before the Indian Currency Committee. Messrs. T. North Christie and H. Bois gave evidence in much detail as to the effect on Ceylon producing industries of the forced appreciation of the rupee, and have thereby earned the thanks of the Association. The Currency Committee has now finished its sittings for taking evidence, and its report is awaited with interest.

On 19th December last a General Meeting of the Association was held to consider the following resolutions:—1. "That this Association strongly disapproves of the proposed expenditure on the Ceylon Northern Railway, as being opposed to the true economies of the Colony." 2. "That a deputation be appointed to wait on the Right Honourable J. Chamberlain, M.P., with the view of urging on the Government a re-consideration of the Ceylon Northern Railway scheme, and that Lord Stanmore be asked to introduce the deputation." The immediate result of the meeeting was to disclose among Ceylon residents at home, many of them with very large interests in the Colony, a remarkable consensus of opinion adverse to the Government scheme, and the resolution of disapproval was passed *nem. con.* The deputation to the Secretary of State, it was decided, should be postponed till the views of the public bodies in Ceylon could be ascertained.

The position of this very important public question in Ceylon at the date of the Association meeting was, considering the novelty and gravity of the proposals, a singular one. It is true that early in the year both the Planters' Association and the Chamber of Commerce had passed resolutions approving of the then Government proposals; but those proposals embraced another Railway, and hence the value of the resolutions, as bearing on the Northern Railway, was rendered very uncertain.

Subsequently a change was made by the Government, both in respect of the gauge and of the provision of funds for the construction of the Northern line, a change on behalf of which no word of approval has been heard as yet from any quarter. The public bodies in Ceylon accepted the amended scheme without protest. Not so the local press; and in view of published statements as to the condition of opinion in Ceylon, statements which were left without contradiction, the Executive Officers of the Association felt it their duty to allow the question to be re-opened. Their action has been justified by the subsequent proceedings of the Ceylon public bodies.

It was most unfortunate that when for a second time the question came before the Planters' Association and Chamber of Commerce calm discussion on the merits of the Northern Railway should have been prejudiced by the introduction of personal and irrelevant matter, the more so as in the result the protest to the Secretary of State for the Colonies was thereby greatly weakened.

A deputation, representing the various interests of the Colony, waited on the Secretary of State on 16th March, and was informed that the Railway would be made, and made as a broad gauge line.

The Committee is unable to share the regret expressed by the Ceylon Chamber of Commerce and by the Chairman of the Planters' Association at the action of this Association; but, on the contrary, deems it a matter of congratulation that, at last, a formal protest has been lodged against the new Railway Policy of the Government.

The vote of thanks, accorded to Mr. J. Henniker Heaton, M.P. by the Association for his services in securing for Ceylon the benefit of Imperial Penny Postage, led to an invitation from that gentleman to representatives of the Association to attend a conference at the House of Commons to consider a scheme for the reduction of the cost of telegrams between the United Kingdom and the Colonies. The invitation was readily accepted, and it is hoped that the agitation thus initiated may prove successful.

The Committee regrets to report the death, during the year, of Mr. W Bowden Smith, a gen-

tleman, who for forty years had been connected with the Ceylon planting industry, and during the years 1874-76 had represented that industry in the Legislative Council.

HOW IT STRUCK AN AMERICAN.

[EXTRACT FROM A LETTER RECEIVED FROM GENERAL NAGLE BY MR. R. E. PINEO.]

"My Dear Sir,—I was quite delighted with your beautiful city, and with the evidences of prosperity which we saw on every hand.

"I have just read an article from your pen entitled 'Ceylon Tea in America.' Being an American, I was struck with the force of your suggestions concerning the most effective advertising of Ceylon tea in America.

"There is no question but that you people furnish a tea that is superior in quality and flavour to anything that comes to our shores, which, if properly advertised—its merits well demonstrated—would secure for it a very large sale indeed.

"Your Exhibit at the World's Fair in Chicago in '93 certainly must have augmented the demand for it very much, BUT A LIKE AMOUNT SPENT AS YOU SUGGEST WOULD BRING FAR GREATER RETURNS. The States are of very wide extent, filled with seventy millions of prosperous consumers. There is no way to make an impression on them in favour of Ceylon tea, but by hanging your banner on the outer wall and *keeping it there* CONTINUALLY. *The people who drink tea must see the banner*—not the jobber alone—and it will be of infinitely more advantage if they can be induced to sample the tea. In almost every case this will result in securing a new customer, which will swell the demand for the tea, and will furnish an incentive to the retailer and wholesaler alike to *push* Ceylon tea. *The advertisement in the local newspaper with the dealer's name attached will be worth far more than any general advertising you can do.*

"I have been a maker of American newspapers the greater part of my life, and feel that I know something of the subject in hand. I think I am safe in saying that, if Ceylon tea is properly put before the American people, you will have gained a permanent customer that will make the beautiful island of Ceylon, with its enterprising and interesting people, wealthy beyond expectation."

INDIA AND THE TEA CAMPAIGN.

At the annual general meeting of the Indian Tea Association, held on 29th May, Mr. Ashton drew attention to the fact that though Mr. Blechynden's engagement had terminated this by no means meant that the efforts to push our teas in America were to be abondoned. The new levy will be used for America, for Russia, and for the Paris Exhibition and India will work with Ceylon. Mr. Ashton points out—in view of the criticisms which have been made in the newspapers, and by some Association members since they heard of the termination of Mr. Blechynden's engagement—that the London Committee, who are the executive in all matters connected with Europe and America, are not in the happy position of our Ceylon friends. They do not know from year to year that they will get all the money they will require. They have to send out a levy, and they never know whether members of the Association even will respond fully to their request for funds. Mr. Ashton says: "Obviously this is very cramping when they have to make up a programme; and I think the details they have sent us are all we can expect at this stage of affairs. I desire, therefore to appeal most strongly to proprietors if they accept the principle of joint advertising, to trust to the London executive, and not to cavil at details. The detail of a programme can never satisfy everybody, and I confess to being a little suspicious of people who tell you that they approve of a general idea, that they are the last people in the world who seek to benefit by other people's expenditure, but that they have not subscribed because so and so is done, or has not been done. I suggest to you to subscribe first." The sale of tea in India was next reviewed, and the distribution of pice-packets of quinine—through the agency of the Post Office—and the refusal of the Government to sanction tea being sold in the same way through postmasters noted. Mr. Ashton does not seem very much surprised that we have not been able to develop the local tea trade quicker. He says: —"I have often noticed in the criticisms people make on this matter, and the parallels they draw between what is done in India and in foreign markets, they leave out of sight the fact that foreign markets we compete against beer, coffee, spirits, wine and so on. These are all very much more expensive articles than tea, and the difficulty in those markets is not one of price but one of taste. We have to divert or create the taste of the people. In India it is quite different because here the natives are almost entirely water drinkers, and tea, although it is cheap, cannot compete with water on price. The consequence is that whereas the important matter in foreign markets is taste, the important matter in India is price. It seems to me that to induce people—and a very slow-moving people too—to spend more money on drink than they like is harder, if you take profits into account, than to divert taste, say from coffee to tea when you at the same time save people's pockets."—*Planter*, June 10.

CASUARINAS.—A correspondent elsewhere gives us some very interesting information about Casuarinas in Ceylon. We recall the fact that a Ceylon planter made "a little fortune" 30 years ago through a plantation of Casuarinas he had planted near the sea coast outside Madras city.

OVER-PLUCKING TEA.—A Ceylon planter writes to an Indian contemporary:—

"I have heard it said in more places than one and particularly from Indian tea planters who have now and again visited this district that in Ceylon we overpluck, this, too, not so much from the older trees but from the younger ones particularly. Now as this has not come from *one* Indian tea planter, but from nearly all, surely their views should be received with attention, instead of our calmly ignoring the statement altogether. I have a friend who is in Assam and has been there for many years who writes me that he cannot believe that I am getting 500 lb. tea per acre off my estate, which is a young one. He tells me that he would never pluck it up to that but be content with 200 to 300 lb. and even off full-bearing tea he would not take more than 400 to 500 lb. at the most now. I would ask are we on the right tack? Are we doing the correct thing, and that which is likely to ultimately benefit the estate owners? That good tea estates in Ceylon will bear up to 700 lb. per acre is, I think, beyond doubt, but I want to know whether we are right in taking that quantity; will it not in all probability impoverish our trees in a few years?"

What does this Ceylon planter say to the 100 acres tea field on Mariawatte plucked at a rate averaging over 1,100 lb. per acre for 16 years and still vigorous!—or, higher up, the 30-year old field on Loolecondera giving between 400 and 500 lb. and looking remarkably well?

FACILITIES FOR MAKING GOOD TEA:—X.

KELEBOKKA—RANGALA—UPPER HEWAHETA; MANURING AND PRICES.

Two letters from Madulkele, one from Rangala, and one from Hewaheta, may be conveniently treated together, though they illustrate diverse views. While one of the Madulkele letters (from the higher part of Kellebokka) holds "wind, mist and rain" as the drawbacks to making better tea, the other considers the character of the factories (one only being first-class in the district), the over-pruning and over-plucking of bushes whereby their health suffers and the flavour is affected, the chief obstacles to be overcome. And both planters are men of wide experience and keen observation. Our Rangala Correspondent again sees no drawbacks, as, with finer plucking on most estates, as good tea is turned out in the district as is possible; not so, the writer in Upper Hewaheta, who holds the weather in the North-East monsoon a drawback, and also the fact that half the crop of the district is plucked between 20th February and 7th June. But have not the months of pruning any effect on the chief months of plucking? On, perhaps, one estate only is all the tea regarded as good jât; on most estates there is, according to all four letters, a mixture represented on the whole by "fair"—the planting of over ten years being inferior. While one Kellebokka writer admits general poverty of soil, in which Rangala agrees, the other regards the general character of the soil as not poor. Our Hewaheta friend distinguishes between old coffee land, in which the soil is poor, and jungle land which is good. There is no difference in opinion that some of the Kellebokka estates are worn out, chiefly old coffee estates, whose surface soil has disappeared. In Rangala, as most of the tea is on old land, much of it has necessarily been worn; and what is not old, is wind-blown! So our friend cheerfully remarks that over-cropping is not the cause of the wearing out; while Hewaheta understands our question in an unusual sense, when he says that estates are worn out, only as far as good yields are concerned, and not as respects flavour and strength of liquor. Our question had reference to the character of the soil; and, perhaps, an answer is to be found in the fact that, though the yield of the land might be better, the flavour and strength of the tea remain what they were—which is not the general experience. Manuring, says one of our Madulkele friends, will improve the tea and prove profitable, on estates along the public cart road; the other admits improvement of the bushes as a sequel to manuring, which, however, is further followed by a fall in prices where manure has been extensively used. This last is an important statement; and we should like to see it thoroughly sifted. Is it merely a case of *post hoc, ergo propter hoc*, or, if an explanation is not to be found in the special character of the manures employed, can there have been climatic or other considerations to account for the fall in price. Rangala practically shares the opinion first-mentioned, with the qualification that the profitableness of the operation is doubtful at present prices. Hewaheta is rather indefinite, in asserting that we have yet to learn the best form of manure to help to keep the tea bush in good heart.

The opinion of one of the Madulkelites on factories is to be found in his answer to the first question, which includes insufficient withering space among the drawbacks, and he is supported by his district neighbour, who further explains that the deficiency is chiefly due to the long spells of bad weather, which are at the bottom of most of the mischief in the Kellebokka and Knuckles districts. The two other districts suffer from the deficiency, though Rangala notes an improvement of late. In motive power little remains to be desired, except in dry weather; but as respects machinery, Kellebokka, in the opinion of one writer, is decidedly deficient in some places. Enough, or more than enough, is the general response to the question touching labour. On pruning, the opinion of one writer has already been expressed, as a drawback to making good tea, owing to its undue severity; but while he does not think the knife has been too long withheld, the other writer declares that the two extremes, of cutting down to within a few inches of the ground, and letting the bushes up to 2 feet or 2½ generally prevail. Rangala has no complaint against pruning; and he and Hewaheta are agreed on pruning at intervals of 18 months to two years. "General remarks" take the form of a growl against "Weather! Weather! Weather!" from one Madulkele source; while the other descants strongly against cruel pruning and close cropping as telling against the general health of the bushes. Rangala regards cheap manure as the only cure possible, where the old land is getting exhausted and the young is too exposed for heavy flushing; and Hewaheta rather contradicting itself as to loss of flavour, desires information as to the cause of the loss of some of the flavour for which tea from the district was noted some ten years ago. This, however, bears out the opinion of Mr. T. C. Owen which we quoted the other day as to a connection between virgin soil and delicate flavour; but, on the other hand, that veteran agriculturist, Mr. Joseph Holloway, on our sixth page today indicates how flavour as well as vigour may be maintained by judicious cultivation.

THE FLORIDA VELVET BEAN.

For the past year or two a great deal has been written about this extraordinary plant. Mr. Geo. W. Hastings, an orange grower in Florida State, thus sums up his experience of it in one of the leading American papers, and in view of the introduction of this bean to this colony may be of interest:—

"The cultivation of the velvet bean up to the present time has established the following facts:—For the extreme south, it is the greatest forage and humus producer yet discovered. North of central Georgia, only in exceptionally long seasons will the seed mature. North of the Ohio River, it will make large growth of vine and leaves, but will not come to bloom. It is a great fertiliser for orange groves, but its use is not advisable after the grooves come into bearing, as the vines are a habitat of

the pumpkin (stink) bug, and on the decay of the bean this pest goes to the orange, puncturing the fruit, and causing it to fall. As a rule, the velvet bean is not the equal of red clover or the cow-pea, either for seed or forage, north of the Gulf States. For forage and fertiliser it has no equal in the barren sandy lands of the south, where the seasons are long enough for the crop to mature before the coming of frosts."—*Agricultural Gazette*, of New South Wales.

CEYLON TEA IN RUSSIA.

The rapid increase in the consumption of Ceylon tea in Russia is noticed in the last British Consular report from Odessa. It is only a few years since it was introduced into Russia, and last year nearly two and three-quarter million pounds of tea were shipped from Ceylon direct to Odessa, against less than half a million pounds in 1897. Teas from China and Ceylon are imported in vessels of the Russian volunteer fleet, which, owing to the low freights charged by these vessels on the homeward voyages, have now practically a monopoly of the tea carrying trade from the tea ports of China and from Colombo, more especially as now tea imported from the Far East in Russian bottoms has preferential railway rates between Odessa and Moscow On the other hand, there is a growing purchase by Ceylon of Russian petroleum ; in 1897 and 1898 Colombo took over one and a quarter million gallons each year. The Acting Consul-General suggests that Australian firms might avail themselves of the low rates of freight in order to introduce tin, tallow, copra, &c., into Russia. It is said that if these commodities were shipped by Singapore the local agency of the volunteer fleet would undertake their transshipment into Russian vessels on moderate terms —London *Times* May 31.

THE BRAZILIAN COFFEE CROP.

Messrs. W H Crossman and Brother, of New York, write as follows on the position and prospects of Brazilian coffee :—

"The receipts in Brazil up to date confirm the figures we have previously given on the current crop. In Santos the receipts already reached 5,000,000 bags, which make it probable that the total there will exceed 5,500,000 bags. In Rio, so far, the receipts are 2,700,000 bags, but in that port they again neglect to count the coffees sent down from the interior direct fer export, the quantity received in this way being about 125,000 bags up to date. The total in Rio for the crop year, however, will be close to 3,500,000 bags, the aggregate for the two ports no doubt reaching 9,000,000 bags. Regarding the next crop, it is now well known that the Brazilians are averse to giving out figures, but they are practically unanimous in stating the next crop to be larger than the present one some claim 10 per cent. more and others as much as 20 per cent more. But whatever the figure finally reaches, it is positively immaterial, since the fouth consecutive large crop in excess of the requirements of consumption will mean a continuation of very low prices.—*The Grocers' Journal*, May 27.

THE LONDON CINNAMON SALES.

WE are glad to find, from information received by a recent mail, that Cinnamon, like tea, has touched the bottom prices, and is now beginning to experience an upward tendency. When we wrote last, on the February sale, we had to chronicle a continued drop in prices, which had commenced with the Hispano-American war; and we were apprehensive that it might be some time yet before Spain recovered sufficiently from its expensive and humiliating defeat to resume her old commercial transactions. The apprehension, notwithstanding the loss of the greatest of her remaining colonies, has, we are glad to find, not been fully justified. Among the conditions which helped prices at the last quarterly auctions on the 29th May, was the receipt of Spanish orders. The affect of a demand for our great spice from Spain was naturally a rise in the price of the finer qualities of cinnamon. While the ordinary qualities advanced from ½d to 1d per lb., the advance in the higher qualities was from 1d to 2d per lb. It is safe to anticipate, if not that the advance will be continued, that the present prices will be maintained, now that one of our oldest and best continental customers is again in the field.

The statistical position of the spice also favored the rise in prices. The quantity offered was only 781 bales, as against 959 in May last year, and 1,649 bales at the February sales. In February, out of the large quantity offered—and it was by no means the largest offering for the month—only about 650 had been sold at the auctions. The fair deduction from the smallness of the offerings and the rise in prices last month, is that the large quantity taken off in February found buyers privately in the interval between the two public sales. We pointed out that cinnamon, like most other products, showed a serious falling-off in exports, in consequence of the prolonged and severe drought during the past quarter. That, too, must have helped the disposal of the stocks in London, and sent up prices some extent. So far as quilled cinnamon goes, the deficiency has not been made up yet, and we are glad to think is not likely to be made good—at any rate during the present quarter. The exports of quilled cinnamon in bales, up to 02th Jun, estand as follows, compared with the three previous years :—

To 20th	June	1899	...	660,985 lb.
Do	do	1898	...	877,580 ,,
Do	do	1897	...	903,749 ,,
Do	do	1896	...	798,999 ,,

Against this falling-off in quilled bark must be set the phenomenal increase in chips, which is a natural consequence of weather which renders peeling impossible, or difficult, and compels the scraping of bark which has coarsened. Naturally, the immense increase in the quantity of chips sent away has led to a fall in prices. We find that chips were neglected at the last sales and that prices receded to 2d and 2½d. The outlook for quilled bark is thus very promising for the present, but rather doubtful for chips.

The following is the report of the leading London firm, from whom we generally quote :—

London, May 31, 1899.

CINNAMON.—At the periodical auctions held on the 29th inst., the small supply of 784 bales Ceylon was presented, compared with 1,619 bales offered in February and 959 bales at this period last year. There was a better attendance and with Spanish orders in the market, the sales went off

with spirit some 680 bales being cleared under the hammer. Ordinary to medium sorts "unworked" (*i.e.*, sold as shipped) mostly brought ½d to 1d per lb. advance on February prices, while the good and fine quill "worked"—all being sold—realised about 1d to 2d per lb. better than last sale's rates. Firsts, ordinary to fine, sold at 10d to 1s 6d. Seconds 9½d to 1s 5d. Thirds, 9d to 1s 4d, and fourths 7½d to 11½d per lb. 33 bales Tellichery were brought in for want of offers.

Chips, &c., were in excessive supply and neglected. Of 2,638 bags offered, about 80 bags only were sold. Chips @ 2d to 2½d, clippings, &c., 7½d to 8½ per lb.

Present Stock of Ceylon 3,830.

	1898.	1897.	1896.	
Bales against	3,854	3,408	3,473	Bales.
	1898.	1897.	1896.	
Chips 7,383 bags	2,692	5,344	5,209	Bags.

The next auctions are fixed for 28th August.

LADY-BIRDS AND GREEN BUG.

The annual general meeting of the Lower Pulneys Planters' Association was held on the 3rd instant at the Dindigul Club.

The Hon. Secretary said:—In presenting my report for 1898-99, I regret I cannot record an altogether flourishing position of affairs. Crops, which in the early part of 1898 we were so sanguine would be large, proved disappointing. The average rainfall on the Lower Pulneys and Siroomullay Hills during June, July, and to the 20th August, 1898, did not exceed 55 cents, showing what a total failure the S.-W. monsoon was. This prolonged drought, accompanied with a bad attack of green bug, resulted in serious damage to our crops. For the present season crops again will not be satisfactory, and prices, I regret to say, have fallen very low.

Lady-Birds.—During the past year no action has been taken towards importing this useful insect (our only remedy for eradicating that awful pest—green bug). It has been suggested by the Nilgiri Association that Mr. Newport be asked to send periodical consignments of lady-birds by post from Australia. Unless we have an entomologist on this side to receive these insects, and subject them to a careful examination before setting them free, there would be the danger of introducing the parasite. We cannot be too careful, or the remedy may prove worse than the existing evil. As this question is to be discussed at this meeting, I shall say nothing further on this subject.

Discussing this subject later on, the Honorary Secretary, Mr. Gerrard, said:—"Mr. H O Newport was sent over to Australia to collect lady-birds. The experiment, as you all know, was an utter, and to us disastrous, failure: for we are somewhat in the same position now, as so vividly described by Mr. Newport in a speech before the U. P. A. S. I. two years ago (1897). He then said: 'Even if this bug spares our trees, it does not spare the crops, and if some thing is not done—and that quickly—we, on the Lower Pulneys, will have to abandon our estates, and leave the district.' Of course the picture was overdrawn. No estates have had to be abandoned on account of the attacks of green bug; but there is little doubt that the continued attacks of this pest have had a good deal to do with the short crops of the last few years, and it is for this reason that we would welcome the arrival of lady-birds to put an end to the bug; for it is very evident that, with present low prices, it is absolutely necessary for the trees to bear large crops, and any pest that prevents them from doing so, by destroying good bearing wood, becomes a very serious evil. So much money has been spent over the Newport failure that there is little left for further experiment, and how, now, to successfully introduce lady-birds from Australia will require very careful consideration at the next meeting of the U.P.A.S.I. I think you will all agree with me that a skilled entomologist should receive the consignments as they arrive, for there is always the danger I believe, in unskilled hands, of introducing with the insect the parasite that feeds on it; and, with reference to this matter, I don't think that a botanist can be expected to carry out the work of an entomologist."

SANDY TEA FOR THE POOR.

Half the "dust teas" brought into England should be confiscated by the Customs according to Mr. Henry Sell's paper, *Commercial Intelligence*, which, by the way, has just been greatly enlarged and improved. In 1,0^0 pounds of "dust tea" there are often 200 pounds of sand and earthy matter. Sometimes there is as much as 35 per cent of mineral rubbish, although not more than 1 per cent of sand is "natural" to tea, in the opinion of Dr. Bell, of the Government laboratory. The official inspection, it is charged, is most superficial, for "not one sample out of 1,000 packages of 'dust teas' landed is submitted to analysis." Large importations of very inferior goods rejected by the Hamburg and New York Customs have been passed by the English Customs and sold in London. The breakfast table of the very poor suffers correspondingly.—*Home paper.*

TEA-GROWING IN RUSSIA.

The tea plantations in the neighbourhood of Batoum continue to occupy the serious attention of a few Russian tea planters, who appear to be more or less sanguine as to the ultimate results that are likely to be attained. Messrs. Popoff have erected a factory for manipulating tea on one of their estates near Batoum, and have gathered their first crop this year, but I regret to say that, owing to the mystery with which they attempt to surround their industry, and the secrecy which they maintain in respect to all matters concerning their plantations and the cultivation of tea on them, it is quite impossible to procure information of a reliable nature in regard to them. Although the tea crop from these gardens was all forwarded to Moscow and St. Petersburg, it does not, according to the St. Petersburg papers, appear to bear comparison with the imported article in general use in the Russian Empire. The Imperial Domain authorities expect to obtain a crop next season, and are making preparations for the erection of a factory on their estates, and I am given to understand that the order for the buildings and plant has been placed in the United Kingdom. It seems probable that the results of tea-growing on the last mentioned estates stand a better chance of success than those obtained on the other estates, thanks to the fact that they have not confined their sowings to one quality only, but have laid out plantations of several kinds of Indian teas as well as Chinese and Ceylon hybrids. By adopting this rational course they will be able to judge which quality is more especially adapted to the prevailing climate and other local conditions. Their acreage under tea has been largely increased during the present year.—*British Consul at Batoum.*

VANILLA.

Mexico.—There are a few Americans already here in the business with plantations about ready to bear. Some have just started. Many others are coming, judging from the numerous inquiries. Heretofore, the French have mainly cultivated the vanilla, with now and then a Mexican, while the Indians hunt and gather the wild vanilla. Vanilla is principally exported to the United States—about $2,000,000 worth per annum. I write this article to answer in a general way the many inquiries addressed to me concerning this industry. Now that our people are embarking in it. I look for improved methods that will increase the production and simplify the process of curing.—*United States Consul at Tuxpan.*

MINOR PRODUCTS REPORT.

Cinchona.—The shipments from Ceylon for the week ending May 9th were 8,064 lb only. At Amsterdam, on June 8th, 4,956 bales and 500 cases will be offered. The total weight is 481,800 kilos (containing the equivalent of 829,920 ounce quinine sulphate), of which 73,382 kilos. is pharmaceutical bark, and 408,118 kilos. manufacturing bark. The manufacturing bark contains an average yield of 5·56 per cent quinine sulphate against 5·52 per cent in May, and 5·21 per cent for the ten auctions in 1898. There has been a fair amount of business done in druggists' barks lately, and in many instances lower prices have been accepted. The Java shipments in May amounted to 666,400 Amst. lb against 672,500 Amst. lb last May. The total for the five months is 170,000 Amst. lb under last year.

PLANTING NOTES.

A Fine Potato Plant.—A remarkably fine potato plant, says the *Australasian*, grown in the Apollo Bay district, has been shown to us by Messrs. Davis, Lancaster, and Co. It is from a crop grown by Mr. Jas. McPhee, at Heathfield Farm. The area of the paddock is five acres; but the yield is expected to reach 75 tons, or an average of 15 tons per acre. The soil is 20 feet deep, with a clay bottom, and the ground forms part of the river flats, of which there is a considerable quantity. The haulm of the plants exhibits unusual vigour of growth, the one shown to us, laid out on a board, reaching the length of nine feet. From its roots twelve large potatoes were taken. The variety is the New Zealand Blue Derwent. The Apollo Bay district also produces good crops of onions, yields of 30 tons per acre being common.

Coffee and Cacao in Mexico.—We have a letter from Mr. E. O. Darley—who will be remembered by some as a Knuckles coffee planter—stating that he had taken charge of about 100,000 acres of land belonging to a Company on which he has to plant a large acreage with coffee, cacao, rubber and sugarcane. He is to give us a report of the district and its capabilities when he has seen a little more of it. Meantime he writes:—"A very large quantity of very fine cacao is produced here and the native coffee bears very heavily and no leaf disease, and I do not believe it exists in Mexico at all. I have never seen or heard of it. Sugarcane also is most prolific, the local demand for sugar and rum making it a very profitable business."

Annatto: Poor Prospects of Crop and an Enemy.—Mr. Van Starrex, of Crystal Hill, Matale, who, we suppose, cultivates as much annatto as anybody in the country, writes:—"The annatto fly has been so bad in the Matale district this year that fears are entertained that the crop out-turn will not pay for upkeep, and there is a fear of the plant going consequently out of cultivation. At any rate, the poor crop with the low prices now given for the article, is likely to stop the manufacture of the dye on Crystall Hill for the present. Rather sad for those who have been earning something out of the seed sold to these manufacturing works from the smallest quantities up to several tons, every season." As soon as the Entomologist returns, he should see to the "fly" and its remedy. What is the cause of persistent low prices? Overproduction (where?) or chemical dyes?

Ramie (Russia).—The cultivation of the ramie plant (Chinese nettle) has been so very successful, more especially in the district of Batoum, that the area under this plant is from year to year increasing. This year's crop has been very abundant, and it is stated that some Russian capitalists are on the point of building a factory in a suitable locality for the purpose of working up the fibre. The Imperial Domains at Chakva have already received machinery for handling this articles.—*British Consul at Batoum*, June 1.

Heating Capacity of Wood.—The *River Plate Review* says that a writer in the *Staats-Zeitung* corrects a very common supposition in regard to the heating capacity of wood, the most notable fact in the case being that such a practicable and easy demonstrable error should so long have prevailed—namely, that the heating capacity of hardwood is greater than that of softwood. The fact, as ascertained by repeated determinations, is that the greatest heating power is possessed by one of the softest varieties of such material—viz., the linden. Taking its heating capacity by the unit, the second best heater is also a soft-wood:—Fir, with 0·99 heating power; next follow the elm and pine, with 0·98; willow, chestnut, larch, with 0·97; maple and spruce fir, with 0·96; black poplar, with 0·95; alder and white birch, with 0·94 only; then come the hard oak, with 0·92; the locust and the white beech, with 0·91; and the red beech, with 0·90. These examples leave no doubt of the general fact that hardwood heats the least.—*Queensland Agricultural Journal.*

Indiarubber Cultivation is attracting a great deal of attention in several of the French Dependencies. We have enquiries about our forthcoming Manual from Paris, Marseilles, West Africa and Madagascar; and an enterprising French Agriculturist reports that he has indented for, and is daily expecting to receive, *one million* of Castilloa seeds and asks if such are of use in Ceylon. We have advised him to send 500,000, if in good condition, out here at once and that we may get the seed auctioned by Mr. Symons (with his consent) with perhaps as good a result as in the case of Para seed, if not better! In a recent French Review devoted to Colonial Agriculture we find several important, up-to-date papers on Rubber. One is devoted to West Africa where France has now very large tropical interests, and one authority shows how, to supplement the indigenous creeper rubber vines, they are introducing four exotic varieties:—Para, Castilloa, Ceara and a new and as yet little-known kind "Maniçoba" rubber. It is evident that there is going to be a good deal done in "rubber" culture; but many parts of Ceylon have special advantages, especially where the rubber trees can be grown as a subsidiary to tea. As regards "preparation," we find the following in a letter addressed to the French Colonial Minister by M. Marcellin Pellet in the latest "Revue des Cultures Coloniales":—

"M. Joaquin Asturias has found out a new system. He filters the milk, to get from it impurities of all sorts, and then lets it dry by natural evaporation, exposing it to the sun on mats, plantain leaves or skins. This process gives an absolutely pure product, equal or superior to the best Para rubber."

TO ALL PARTS OF ASIA, AFRICA, AMERICA AND OCEANIA.

Seeds & Plants of Commercial Products.

Hevea Brasiliensis (Para Rubber).—Orders being booked for the coming crop available in August and September. This is the only crop of seeds in the year. All orders should reach us before the end of July to avoid disappointment, as we have to make arrangements in time; guaranteed to arrive in good order at destination. We have already booked a large number of orders. A Sumatra Planter writes, dating 9th March, 1899:—"I consent to the price of £——per thousand. I herewith order 50,000 upon condition that you guarantee at least 33 % seeds germinating." Plants can be forwarded all the year round in Wardian cases. Price and particulars as per our Circular No. 30.

Ficus Elastica (Assam and Java Rubber.)—Seeds supplied by the pound with instructions; price according to quantity. This tree grows equally well in high and low land, in forest and grass land, its cultivation being extended largely by the Indian Government.

Manihot Glaziovii (Ceara or Manicoba Rubber).—Fresh seeds available all the year round; price as per our Circular No. 31. It is superior to Mangabeira rubber and second to Para rubber.

Castilloa Elastica (Panama or Central American Rubber).—Seeds and Plants supplied; price and particulars as per our Circular No. 32.

Urceola Esculenta (Burma Rubber) and **Landolphia Kirkii** (Mozambique Rubber).—Seeds and plants, both are creepers.

Cinchona Seeds.—Different varieties.

Hybridised Maragogipe Coffee.—A larged-beaned superior variety of Coffee in demand; seeds.

Santalum Album (Sandlewood).—The cultivation and felling of the tree is entirely under Government monopoly in India, Sandlewoods to the value of over £100,000 being annually exported to various countries from India. The cultivation of this useful tree is now receiving increased attention an other countries; seeds and plants.

Eucalyptus Marginata (Jarra).—Large quantities of this most valuable timber are being annually exported from Australia to London and various parts of the world for street paving and other purposes. Price of seeds on application. 7,846 pieces of Jarra timber has already arrived for Ceylon use.

Seeds and Plants of Cinnamon, Nutmeg, Clove, Kolanut, Pepper, Cardamom, Vanilla, Arabian, Liberian and Maragogipe Coffee, Cacao, Tea, Coca, Fibre, Medicinal and Fruit Trees, Shade and Timber Trees, also Palms, Bulbs, Orchids, &c.

Our enlarged Descriptive Price List of Tropical Seeds and Plants of Commercial Products for Foreign Countries for 1899-1900 are now being forwarded to applicants in different parts of the world.

"South Africa."—The great authority on South African affairs of 25th March, 1899, says:—"An interesting Catalogue reaches us from the East. It is issued by William Brothers, Tropical Seed Merchants, of Henaratgoda, Ceylon, and schedules all the useful and beautiful plants which will thrive in tropical and semi-tropical regions. We fancy Messrs. Williams should do good business, for now that the great Powers have grabbed all the waste places of the earth, they must turn to and prove that they were worth the grabbing. We recommend the great Powers and Concessionaries under them to go to William Brothers."

A leading Planter writes from *New Hebrides* under date 17th January, 1899:—"I shall like a few more of your Catalogues to distribute through these Islands, as I feel sure many would place themselves in communication with you, did they know where to write for Seeds and Plants."

Our New Descriptive Price List of Seeds and Plants of Fruit Trees now being prepared and will be ready shortly.

Agents in London:—Messrs. P. W. WOOLLEY & Co., 33, Basinghall Street.

Agent in Colombo, Ceylon:—E. B CREASY, Esq.

Telegraphic Address:
William, Veyangoda, Ceylon.
Lieber's, A.I. and A.B.C. Codes used.

J. P. WILLIAM & BROTHERS,
Tropical Seed Merchants,
Henaratgoda, Ceylon.

RUBBER IN TRINIDAD.

The annual report of Mr. J H Hart, Superintendent of the Royal Botanic Gardens in Trinidad, for the year 1898, is as follows:—Rubber.—(Castilloa elastica, Cerv.) Rubber cultivation has been taken up with considerable energy during the year 1898. The principal kind nsed for planting was Castilloa elastica, Cerv. Auction sales of seeds and plants of this rubber were well attended and good prices were realised, as there was considerable competition.

At the experimental station a small area was planted in July. Among the Castilloa has been planted at wide intervals the larger and slower growing Hevea brasiliensis with the view to their becoming the permanent occupants of the ground; it being the intention to bleed the Castilloa trees very hard for certain experiments, under which many may succumb. Another area has been planted out under the shade of standing trees, in what is called the old cottage grounds. It has been found that where Castilloa is well shaded their growth is much more rapid and vigorous than in the open. To grow Castilloa without a certain amount of shade and shelter, would in my opinion be to invite a succession of slow and stunted growths. In its native countries it is always found in sheltered and protected lands and always become stunted in the open vega. Trees planted in Trinidad under standing shade have been found to thrive well, and soon become the picture of healthy growth. At the experimental station it was necessary to shade with Banana, Cassava, &c., and under these conditions the plants have also grown well. In the nurseries at St. Clair are several thousands of Castilloa plants in bamboo pots; a large proportion of which are already ordered for the next planting season. Castilloa under favourable conditions in Trinidad makes rapid growth, and is probably better suited to the climate than any other class of rubber, as it comes to maturity earlier and can be handled with a minimum of previous planting experience. Specimens of the rubber sent to England for valuation prove that our Castilloa trees are the best *kind* in cultivation. The large crops of seed now obtainable from Castilloa will make it possible at an early date to grow stems for the purpose of extracting rubber from them in their young state. Stems of a year old have been fonnd to contain some 8 per cent. of their dry weight in rubber, and this amount has been extracted in the laboratory. Whether the same percentage can be extracted in actual practice, remains to be seen.

HEVEA BRASILIENSIS, "Para Rubber."—This tree produces rubber of the finest quality, for which the demand is very regular. As a tree it is of slower growth than Castilloa, but grown for a permanent crop it will probably exceed that tree in value. The tree proves itself to be hardy, it can be handled with ease, and grows freely; although it takes a number of years before the trunk becomes large enough to bleed regularly. Growing at the old Gardens, the tree is seen to make itself at home on the hard and barren soil which there obtains; showing that although it is a tree fond of water, and delighting in frequently-flooded valleys, it will also grow in other situations. Specimens of rubber made from these trees have been examined in London and valued at high rates.

I have noted that seeds of this kind of rubber are being offered in France at a rate of over £40 per thousand or 10d. each; and in Ceylon rates of £3 per thousand on the spot—packing cases, and freight extra —are being charged. The vitality of Hevea seed like that of Castilloa, is very fugitive, and great risk is run by planters in obtaining seeds from a distance. Our seed harvested in Nov. was of excellent quality and fully 99 per cent germinated.

A tree of Hevea confusa, Hemsly, formerly known as Hevea Sprucei, also bore fruit. The distinguishing characters of the seed are its large size, its angular form, and the softness of its outer covering, when compared with those of Hevea brasiliensis.

What is apparently another Hevea has been presented to the Experiment Station by his Excellency the Governor, who obtained it from Dr. Carl Bovallius, who was recently exploring the territory of the Amazon, S.A.

These, when handed over, were in bad condition. as I proved by cutting a sample lot before sowing. Out of 170 seeds only some five seeds germinated, and only two plants promise to survive. This Hevea has seed not more than half the size of those of Hevea brasiliensis, and of much darker colour.

Kicksia africana, or Ire Rubber is obtained from a newly introduced African tree. A small section was planted out in November, and, so far as we can judge in so short a time, promises to do well. This rubber has been seen in the African forest by Mr. Millen, my acting assistant, who states that our plants are quite true to name. Mr. Millen has shown me samples of material collected by himself from trees in the African interior which shows this rubber is little, if it all, inferior to the best "Para." A parcel of seed sent to us by Kew did not germinate so well as did the first lot received, and but few plants were obtained from it. Every endeavour will be made to extend the culture of this species, as it appears to be of great promise and well suited for growth in Trinidad.

A report reached us from German sources to the effect that Kicksia africana does not produce rubber at all. Mr. Millen's evidence, however, satisfies us upon this point. In addition, however, it may be recorded that we have trees sufficiently large to bleed on a small scale, and from these trees we have recently procnred atex, from which a small piece of excellent rubber was produced, which proves the report to have been a mere trade rumonr.

MANIHOT GLAZIOVII OR CEARA RUBBER.—Some demand has set in for seeds of this rubber. These demands we have had to refer elsewhere, as we have no supply. There is one tree in the Garden which si said to bo some 25 years old which bears a few seeds annually, bnt, although of this age, its stem is but barely six inches in diameter. Some of onr correspondents, however, are qnite sanguine as to its value for cultnre in Trinidad. Some few trees were planted a few years ago at the Chaguans Convict Depot, bnt their condition is far from convincing proof of its suitability for our climate. My own experience, the Ceylon records, and various other sources of information tend to convince that Castilloa, Hevea, and Kicksia are all preferable to Ceara for cultivation in this island. Ceara, when yonng, grows rapidly, and induce the cultivator in many cases to believe in a continuous run of growth, which often proves disappointing. It has been reported by some who have visited the Ceara districts that the trees never grow to a large size. It may possibly be grown with economy in some of our mountain lands, unsuited for other products, but as a rubber prodncer I cannot nndertake to give it a higher recommendation. The rubber produce is, however, of good quality.

LANDOLPHIA AND CEROPEGIA.—African and Ceylon rnbbers. These are both under cultivation, bnt at present there does not appear to be sufficient inducement to plant them extensively.

TABORNAMONTANA CRASSE.—This tree is a repnted rubber producer, and was grown on trial in these gardens for the past few years. Having a tree which had attained a large size, it was bled freely, and the latex was treated in different ways with a view of prodncing coagulation, but withont success. Eventually a substance was produced which resembled in appearance a lump of chalk, or compacted starch, quite brittle in character, and certainly not rubber.—*India-Rubber and Gutta-Percha Journal*

PARA RUBBER TREES.—We learn that the largest rubber tree on Culloden has a girth of about 8½ feet at 3 feet from the ground. This one is some 16 years old and others of the same or less age are, we are told, well over 7 feet.

TOBACCO.

The directors of the New London Borneo Tobacco Company recommend a dividend of 2½ per cent for 1898 and 5 per cent on account of 1899 on the paid-up capital of the 80,000 ordinary shares.

The United States Tobacco Trust announces its intention to proceed immediately with the construction and equipment of factories in Japan, where, however, tobacco is a Government monopoly.—*L and C Express*, June 2.

PRODUCE AND PLANTING.

Tea Unfit for Consumption.—Attention has been called in these columns, and by more than one of our contemporaries, to the rubbish called by courtesy tea which has of late found its way into the London market. From the complaints made it is clear that there has either been laxity on the part of those business it is to detect rubbish in tea or that the Customs department needs the addition of some expert knowledge and a general strengthening of its staff. The subject has been dealt with sensationally in more than one paper, and the result is that the Chancellor of the Exchequer was interrogated on the subject last night. Sir F Flannery (Yorkshire, Shipley) asked the Chancellor of the Exchequer "if his attention had been called to a statement in the Press that a quarter of the caper teas and half of the dust teas now imported should be confiscated under the Food and Drugs Act of 1875 by reason of their containing 20 per cent. of earthy matter and sand; whether he would explain the nature of the precautions taken by the Customs department in London for the detection of such adulteration, and whether the number of samples analysed could be increased with advantage; and whether, having regard to the fact that the descriptions of tea above named were for the most part consumed by the humbler classes least able to protect themselves against adulteration, he would increase the staff of inspectors especially allocated to the duties of sampling and analysis of caper and dust teas." The Chancellor of the Exchequer, in reply, said: "My attention has been called to this matter. The Board of Customs have, in view of representations made to them by certain firms and of statements in the Press, ordered a full inquiry to be made. It is not easy, within the limits of an answer to a question, to explain the precautions taken by the Board for the detection of the adulteration of tea; but I shall be happy, if the hon. member wishes it, to supply him with particulars. The Board of Customs, as at present advised, do not consider that there is any need for altering the existing regulations, but if, as a result of the investigation now in progress, it should appear advisable to make such alterations or to increase the number of tea inspectors the necessary steps will be taken at once. Meantime a circular has been issued to the tea inspectors directing them to administer the existing regulations with special care." This full enquiry is needed, and it will be awaited with some interest.

The Draft Question.—It remains to be seen whether the strong opposition to the abolition of the draft on tea, as expressed at the meeting of the tea trade held on Wednesday, and reported in another column will cause the Tea Associations to modify their views. That the trade is in earnest on the subject admits of no doubt, and the Associations will now have to consider the question of the wisdom of carrying their proposal into effect in the face of such strong feeling against it.

Very Common Tea.—Apart from the adulteration question, it is noticeable of late that, owing to the competition in the tea trade, and the demand for low-priced tea, leaf of very inferior quality finds a sale. These teas are so very poor that they are really dearer than the better qualities, and as a correspondent points out, the purchaser of low-priced canister teas contributes a much larger percentage to the revenue than he would if buying better and higher-priced teas.

The Increasing Popularity of Tea.—With the ups and downs of the tea planting industry one fact is noticeable, and that is that tea drinking is on the increase. In spite of the open hostility of the medical profession, tea continues to grow in popularity in countries where tea drinking is a recognised institution, while it is gaining favour elsewhere. This is largely due to the nterprise of Indian and Ceylon planters. Tea has been "pushed" in recent years as it never was when China controlled the market, and the result is seen in the growing demand on the European Continent, in the United States, and in the British colonies. Referring to this we notice that the "Globe" pays tribute to the work of popularising tea. It says: "After a long and costly struggle, Indian and Ceylon teas are fast conquering the whole world of consumers by their now recognised superiority: Australasian prejudice was the first to succumb; then followed South Africa; the United States and Canada made a harder fight, but they too, have given way; while Russia, the greatest market of all, is largely and continuously increasing its importations." The *Globe* then refers to South America as a field for tea, and alludes to the consumption of maté. In some parts of South America Paraguay tea is popular, but there is plenty of scope for pioneer work in the introduction, or rather the pushing, of Indian and Ceylon tea in Brazil, the Argentines, Chili, Peru, and the other South American States, where up to now the opportunity for purchasing good tea has been very limited.

A New Form of Advertising.—Apropos of "Tea and Travellers" the *Grocer* says: "In the law courts, Tuesday last a case was heard, which, though not relating tea to gave a few incidental references to curious procedure in connection with the tea trade. That branch of commerce, as we need hardly say, has greatly changed during recent years, both in its wholesale and retail aspects. There is no duty-paying article now sold at a closer margin of profit than tea; it is cheaper than ever, and people drink more of it, despite a fairly brisk demand for cocoa; and if a grocer is so ill-advised as to sell sugar without an adequate profit he cannot expect to recoup himself satisfactorily out of his tea sales. Competition has brought down prices to a point which seems to have reached the irreducible minimum; but some of our retail friends appear to believe that they have not yet touched bottom. We can only hope that their fears are unfounded. In the wholesale branch, moreover, the position of affairs is not eminently gratifying; things are, as the saying is, cut very fine. In the case referred to above, one of the litigants had been connected with a City tea company. He admitted, when questioned as to the business of that concern, that he had kept a set of books containing fictitious entries in order to get the travellers to believe they were doing a larger trade than they were, and to tell the customers so. 'That,' added this ingenuous witness without periphrasis, 'was a form of advertising. He did not see anything discreditable in it, although it was certainly not a highly moral proceeding. Granting that such a method in regard to tea is exceptional, it indicates that there are in the City of London at the present time a certain class of speculative traders who are not particular what they do, and who, if they cannot sell tea in one way, are quick to try another, even if the latter does not happen to be 'highly moral.'. So long as they are able to keep on the safe side of the law they do not trouble themselves with ethical problems. Their conscience only begins to prick them when there is little cash in the till, when business is falling off, and when they are not doing as well as expected. Then their efforts to improve their position—including 'fictitious entries' in books to produce an impression of great commercial

activity—are apt to stray near the border line where honesty ends and sharp practice (or worse) begins. It is a pity that the tea trade should be exploited by so many adventurers. They would have no chance, of course, if the public were not easily gullible, often being induced by peculiar 'forms of advertisement' to purchase inferior tea at a price far in excess of its value."

Tea in Holland.—The Dutch have not hitherto proved themselves large consumers of tea, but the popularity of the "cup that cheers" in other countries has given additional zest to it in Holland. As a result there is an increasing demand for Java tea in the Netherlands. In 1893 the imports of tea from Java amounted to 67,361 chests, while from China only 3,346 chests were received. According to Mr. Robinson, the British Consul at Amsterdam, the average price of the Java article in 1898 was 5 4-5d per lb. There were considerable fluctuations during the year—*H. and C. Mail*, June 9.

INDIA RUBBER IN FRENCH AFRICA.

(Translated for the "Ceylon Observer" and "Tropical Agriculturist" from the "Revue des Cultures Coloniales for May 1899.)

There have been introduced into Africa, trees furnishing excellent Caoutchouc. Those who introduced them thought they would compensate for the irrational destruction of the (lianes) creepers as carried on by natives. The following are the kinds introduced :—

Manihot Glaziovii (the Ceara rubber tree).
Maniçoba (little known, but allied to Ceara.)
Castilloa elastica (from Colombia).
Hevea brasiliensis (gives the kind known as Para).

These trees grow well on the Western coast, but it is quite a question whether colonists should be advised to start plantations of these only, just at present. M. Chalot, Director of the Experimental Garden of Librevil' has made a series of experiments with Manihot trees, aged six or seven years. The results, so far, are not conclusive, whether as to yield or method of collection ; where they had expected one kilogramme of coagulated latex, they have only obtained 600 gr. ; the value of the raw material being 3 fr. 60 c., in place of 6 francs as estimated, and the expense of harvesting had been much greater than was anticipated. Until now, they have been able to arrive at no conclusions as to the suitable soils, time for harvesting, &c. To get these, it will be necessary to collect information from private sources. Meanwhile it seems to us that a plantation of Caoutchouc would imply too tedious a sinking of capital, as there would probably be a waiting of 10 or 12 years involved. If an owner of plantations would put in belts of Indiarubber amongst coffee or cacao, perhaps as boundaries or as shade trees, the experiment could be carried on at small cost. So, also, if foresters holding a concession, would put in young rubber plants, in the cleared portions—getting these plants from the Experimental Gardens—and employing only bands of children for the work, they could at small cost help in useful experiments.

CULTIVATION OF RUBBER CREEPERS *(lianes)*.

Would the cultivation of these be possible, it has been asked. In 1893 I asked that experiments in these might be made in the Garden at Libreville, but no information has been given. There are in the plantations of Aschuka a certain number planted as a hedge, said to be in good condition. Better still, I heard, there is a M. Lacour, who has in the Kasaï a plantation of 200,000 stumps of *Landolphia*. When was this plantation started? I have asked M. Merlin, General Secretary of the Congo, to answer several questions about this............I have since learnt that the estate is only three years old.

If it is a qusetion of creepers—these must be cultivated in a horizontal and not vertical direction, lest one should run against the other and cause great difficulty of harvesting—weather by incision or by cutting down trees. If by incision, one ought not to have to use ladders. Perhaps to solve the question of how to harvest, it would be well to follow the natives into the jungle for some days, noting carefully their methods and the quantity of vegetables used, the quantity of latex collected by one man, the distance covered and the means of transport used. The black man does not calculate his time or his food.........Should we not have to replace the plantain leaf in which the latex is collected by the native, by the earthenware vases provided with clamps that are used in the Gironde, for the collection of resin ; and in place of the saucepan they use, should we not take a larger vessel and perhaps use acids, even if these are natural ones, made on the spot?

Finally we scarcely think our colonists could make a profitable industry out of rubber as things now stand. Perhaps it might be best to follow as near as may be the methods of collection of the natives if the trade is to be even profitable. But then the question of the destruction of the creepers and trees comes in and I would suggest that just as in some French departments a certain sum is annually set apart for re-foresting the hills and mountains, so here an agent for agriculture be employed to distribute plants and secure cultivation. He would not be content with simply collecting and despatching seed, but would see it well packed and planted ; and once planted up, the lands would be regarded as communal forest and be hired or leased out at so much per tree, whether to Europeans or to natives. Another system has lately been put into practice in the Congo State. Inspectors of forests have been started, who are always moving about. Their work is not to forbid the cutting down of rubber creepers, but to oblige the chiefs, or village headmen to preserve a certain number of the fruits, which the natives used to eat, and to sow the seeds in the forest. Already many chiefs have come and announced their intention of so doing and the places have been marked where this was being done. The Belgians foresaw that their export would soon diminish, as has already been the case with Netherlands India. The native in Africa has further to be instructed in the preparation of the latex. They boil it, add some natural juices and earth, stones and woody fibres, and this product is of a lower value by 4 or 5 francs. The natives of the province of Para also coagulate by heat, but their process is in itself excellent. Into the vessels which contain the latex they plunge a wooden spatula which they afterwards expose over a hot fire of odorous planters. The spatula then goes and comes, from a hot fire to the vessel, and the latex coagulates in thin layers closed up and from which all humidity is driven away. This suppresses ulterior fermentations and prevents the disagreeable odour which comes from African stocks. In native Africa they use sometimes natural acids (native sorrel lemon juice). The process is excellent, but there is always the mixture of various juices and of foreign bodies. The native, then, must be taught that it is to his advantage to produce the best possible latex and that he must cause to coagulate rapidly the latex obtained from one single variety of creeper, the *Landolphia* is the best.

MOTHER-O'-PEARL AND RUBBER.

England supplied to France, in 1897, 1,308,331 kilos of mother-of-pearl, estimated at 3,794,159 francs, and Germany 24,594 kilos, estimated at 71,332 francs. The mother-of-pearl export from French Oceania, on the other hand, at the present time, ranges in value from 1¼ to 1½ million francs annually, and is monopolized by the Society Islands Group. Practically the whole of this export goes to London and Liverpool. As France, however, requires on an average 6½ million francs' worth of mother-of-pearl annually for her industry, it would seem that the production of the French Oceanian Settlements is not likely, unless largely developed, to be sufficient. The shell fisheries of the Persian Gulf of Ceylon, of Cape Comorin, of British Australia, of the Straits Settlements, of the China Seas, of Japan, and of the United States of America, are not liable to French export duties, and will always remain for the supply of the British markets. It is interesting to note that, in 1897, the mother-of-pearl supply of France was drawn in the following proportion from the various countries: from England 55½ per cent., from India 27 per cent., from the United States of America 4 per cent., from Japan 2 per cent., from Germany 1½ per cent., from other foreign countries 9½ per cent.. and direct from the French Colonies ½ per cent. But mother-of-pearl is not the only article for which France is attempting to create a market in her ports by means of export duties. We hear upon good authority that a proposal is under consideration for the imposition of an export duty upon india-rubber, which, like the export duty upon mother-of-pearl, would be remitted upon the production of a certificate from the French Customs to the effect that the india-rubber has been sent direct to a French port and declared for consumption in France. The importance of this proposed step, which would cover Madagascar and the French Congo and French Guiana, need not be insisted upon.—*British Trade Journal.*

ADULTERATION OF TEA.

HOUSE OF COMMONS, THURSDAY, JUNE 8.

Sir F. Flannery (Yorkshire, Shipley) asked the Chancellor of the Exchequer if his attention had been called to a statement in the Press that a quarter of the caper teas and half of the dust teas now imported should be confiscated under the Food and Drugs Act of 1875 by reason of their containing 20 per cent of earthly matter and sand; whether he would explain the nature of the precautions taken by the Customs Department in London for the detection of such adulteration, and whether the number of samples analysed could be increased with advantage; and whether, having regard to the fact that the descriptions of tea above named were for the most part consumed by the humbler classes least able to protect themselves against adulteration, he would increase the staff of inspectors especially allocated to the duties of sampling and analysis of caper and dust teas.

The Chancellor of the Exchequer.—My attention has been called to this matter. The Board of Customs have, in view of representations made to them by certain firms and of statements in the Press, ordered a full inquiry to be made. It is not easy, within the limits of an answer to a question, to explain the precautions taken by the Board for the detection of the adulteration of tea; but I shall be happy, if the hon. member wishes it, to supply him with particulars. The Board of Customs, as at present advised, do not consider that there is any need for altering the existing regulations but if, as a result of the investigations now in progress, it should appear advisable to make such alterations or to increase the number of tea inspectors the necessary steps will be taken at once. Meantime a circular has been issued to the tea inspectors directing them to administer the existing regulations with special care.—London *Times*, June 9.

Shuttleworth, W. S. & Co.; Tetley, Jos., & Co., Travers, Jos., and Son, Limited; Tower Tea Co.

This was seconded by Mr. T. Smith, formally put to the meeting, and carried unanimously. After further short addresses from gentlemen present, all to the same purpose, the meeting concluded with a vote of thanks to the chairman.—*H and C Mail*, June 9.

FACILITIES FOR MAKING GOOD TEA XI.

CONTRADICTORY VIEWS AS REGARDS MANURING.

In respect of "Upper Hewaheta district," we misapprehended the local conditions in some of our remarks in our last article. For instance, as regards the time for "pruning," planters have to consider the effect of the South-west monsoon which sometimes plays havoc with tea bushes with less than a year's growth on them after pruning. As regards soil, the remarks made to us were meant to show that though the old coffee soils do not give as good yields as virgin soil; yet flavour is maintained in tea from the former, longer and more steadily than in tea from virgin soil, partly due, perhaps to the slower growth of the flush on old coffee land. No doubt there is a difference in flavour all round, if one makes comparisons with say ten years; but it is shown that fresh land yielding 500 lb. of tea per acre has lost flavour more than old land cropping 300 lb. per acre. In regard to "Manuring" it is felt that a better knowledge of chemistry would be a great help to a planter in going thoroughly into the question and making the practical experiments on his own land which can alone show what fertilisers are most suitable to apply.

The three letters which have been held over to the last, are dated from Hatton, Nawalapitiya and Dolosbage; but they are not the least important of those with which we have had to deal. The first holds the arranging and chopping the manufacture"—by which we suppose, is meant interference by Proprietor or Visiting Agent, according to the supposed course of the market—as the drawback to the turning out of better tea. Nawalapitiya recognises no particular drawbacks, as the average rates obtained for its teas, are all that can fairly be expected from its elevation and soil. In Dolosbage, the great drawback has been, till very recently, insufficient labour, aggravated from March to May by a rush of leaf, which hinders proper withering and necessitates night work which seldom produces good tea. The jât on most estates in Hatton is said to be poor, and even inferior; whereas Nawalapitiya considers its jât generally fair; and Dolosbage generally good. On the other hand, the Hatton soil is fairly good, and, so far from being worn, the estates yield larger returns than they did some years ago; while Nawalapitiya, though its estates

are not worn, has generally poor soil, with exceptions, the tea having succeeded coffee or some other product which had left the land without rest for 30 to 40 years. Dolosbage does not regard its soil as particularly poor, and has no wornout estates. Hatton returns a decided "No" to the question whether manuring would improve the tea, and make it more profitable; but gives us no reason in support of the strong opinion it holds. Nawalapitiya not only holds a diametrically opposite view; but also advances grounds in support of it which seem to us cogent, when it says that manure would improve the bushes and thus increase the quantity, on that the improved condition will enable the bushes to resist "the so-called rust, and other pests from which tea is by no means as free as some people imagine." These results would necessarily be profitable: Dolosbage reports the prosecution of manuring; and argues that, if it only pays the cost of the manure and its application, it should be continued, as affording work for coolies during the slack season!

In regard to Factories, Hatton does not complain of any deficiency of withering room or machinery; but thinks the motive power admits of improvement. Nawalapitiya is in a different case, lacking as it does withering room, but being well-off as regards machinery, while sharing the deficiency in motive power. Dolosbage gets on well with its withering space for nine months; but when April to May pours in thrice the average yield of leaf, there is necessarily pressure. Neither in respect of machinery nor motive power has it any grievance. All three districts enjoyed a sufficiency of labour during the past year; but Dolosbage during the rush has to resort generally to cash plucking, and even with that it is not possible to go round within ten days. Pruning is not too severe in Hatton, though it is neglected too long on most places; but Nawalapitiya is free from either neglect or undue severity, while Dolosbage laments the spare use of the knife which it thinks should be on the move once in 18 or 20 months, when flush practically stops, whereas the rule has been to keep the bushes on for two years. Hatton's general remarks embrace the counsel to prune frequently, and to adapt the manufacture to the district, without attempting to get high-grown tea from low-lying places. Dolosbage's forcing climate results in lack of flavour in its teas; but where quantity is not aimed at, fair prices are obtained. Nawalapitiya considers the district well-suited to tea, but does not hope for a larger output, as what little land may be added to the acreage will be enough only to make up the falling-off from older fields. Indeed, that is its view of the whole Island, save Balangoda where a big acreage has yet to show its yield; and there is some significance, coming as it does from an old hand, in the hint that the weather alone cannot explain the lack of growth in the output of the island's tea.

Satinwood in Ceylon.—Mr. A. F. Broun has an interesting paper on this subject with a sketch map in the *Indian Forester* to hand. We shall take it over in full later on,

RUBBER ESTATES OF PARA.

DIFFICULTIES WITH THE VENDOR'S OVERCOME—RUBBER ALREADY BEGINNING TO COME IN.

An extraordinary general meeting of the Rubber Estates of Para, Limited, was held yesterday, at Winchester House, Old Broad-street, E.C., the Hon. John Augustus de Grey in the chair. After the formal business.

Mr. Woodrow said: Will you tell us something about the business of the company now?

The Chairman: Our position, as I understand it, is now a very favourable one. But before going into that question, I feel that the board have to account to those gentlemen who originally subscribed for the shares of the company, for the fact that we have not yet been able to pay a dividend. I should remind those who hold preference shares that their dividend has not been passed over; it is simply postponed until the company is in funds sufficient to enable it to pay them. The reason why we have been obliged to defer payment of the dividend is a very simple one. When we were in treaty for taking over the company's property in Para, we ought to have concluded our contracts in April; but the company's issue was not responded to by the public sufficient to enable us to do so, and consequently we had to ask for an extension of time, and so it came about that we were not able to do so until September 10 of last year, when we did complete our contract by the purchase of the property. The result of that was this, that the vendor had us more or less in his power. We received an assurance through the vendor's agent on which we thought we could rely, that we should receive compensation for their crop which the vendor announced that he was going to deprive us of, and at that time we were obliged to pay £2,000 as compensation to the vendor for not having fulfilled the contract at the time it should have been fulfilled. Then we were informed that the vendor intended to appropriate the whole of last year's crop, but that we should be compensated. I should explain that the season for rubber collecting begins in July, but that the arrangements are made as early as about the February before. The vendor had made his arrangement for sending men to the estates and was in process of getting that crop when we completed our contract. We should not, if we had taken over the estate then, been in a position to interfere, but we expected that the crop would have been handed over to us. But we were disappointed in that respect, and in the result none of the promises which were made to us by the vendor were fulfilled. And, moreover, we were promised the rents of the rubber roads from the tenants, and we received £1,400. The whole of the money we received from the estates was in the past season. Those facts are what caused us to be unable at the present time to pay a dividend for our shares, because it was not until March 1 of this year that we obtained full possession of the estates, and were able to commence working on them. Some months ago, however, we sent out Mr. Milne, our manager, who has had his work supplemented by an accountant and several storekeepers from this country. You will have received the circular, dated April 14, which was the first information that we were able to give you of our prospects in the coming season. That circular is of an encouraging description, and as far as the expectations held out in it about the beginning of the season, they have been fully realised, because we have received altogether from the estates during the wet season, and up to the end of May, some 7½ tons; and we have now at Parà about 1½ tons more awaiting shipment, which brings up the amount from the estate to a little more than we anticipated in that circular. We are, perhaps, the first people who have had any result at all from a rubber estate in the wet season; but we sent our men up early, and they consequently got this return, and we hope that the June returns will fully come up to what is foreshadowed in our circular. We have sent up about 650 men on our own account, and we are working the estates, as I told you that we should, on the direct system; that is to say, without the

intervention of a middle-man. We sent our men to work the roads under our own supervision. The system hitherto has been to let the rubber roads to tenants at a rent which the tenant pays; but if you send your men to the estates, you have, first of all, to keep them supplied with food and necessaries, and then they are debited with the amount of the stores which you provide, and they have to pay that back in rubber. All the rubber which they collect has to be sold to this company, and it is invoiced to you at a price between which and the price at Para there is a considerable differeuce; the exact amount of difference I will not now venture to state, but I will say that it is in your favour. Some of our roads are still let to tenants; but we reckon that we still have about 750 men working on that property, besides our manager and the accountant, and the five inspectors. We are in process of negotiation for a steam launch for our estate. I do not like to say too much about the profits which we are likely to make on the season, but I hope that something like the gross product foreshadowed in our circular may be realised. You must remember that this is a new business; it is a thing that has never been tried by anybody before, and with the actual number of trees in Para, what the number of trees per road may be, &c., is more or less an unknown quantity. Therefore, I will not commit myself to more than this—I will say that from the returns which we have had we may expect a profit at the end of the year. One important point which I am reminded of is that we believe we have now plenty of working capital to carry us to a successful issue in the operations of the company. (Applause.)

Mr. Woodrow moved a vote of thanks to the chairman, which was seconded by Mr. Gillingham, and agreed to unanimously.

The Chairman having briefly acknowledged the vote, the proceedings terminated.—*Home paper.*

INDIAN AND CEYLON TEA. ANNUAL REVIEW.

38, Mincing Lane, June 5th, 1899.

We take the opportunity offered by the publication of the figures covering the twelve months ending May 31st, to review the events of the season now concluded, and to print some statistics which may be of general interest.

The season has been memorable for the illustration it has afforded of the vicissitudes of fortune awaiting those who devote their energies and capital to the business of tea planting; and of the rapid transition from a state of discouragement to one of hope possible under the conditions which regulate trade in our times. It will also be remembered as the year in which the policy of striving to cultivate new markets, so long pursued with tenacity, at length met with an adequate reward.

Through a combination of circumstances, the position of Tea has, indeed, undergone since the autumn of 1898 a change so conspicuous as to claim very careful attention—placing in the background, for the time being, topics of minor importance.

As a preliminary to consideration of the question of deepest concern, " Is this change merely a temporary incident, or likely to be permanent in its effect ? ", it will be well to recall the position a year ago. We were then suffering from the loss to producers entailed by the rise in exchange and freight; from deterioration in the quality of the Indian crop; from a temporary check to the increase of consumption at home; and from disappointment at the slow development of trade with other countries.

At the opening of the season came estimates of a large supply from India—destined not to be realized, as has not infrequent y been the case, but harmful through the fear of over-production which they created. Only for those estates capable of producing fine teas could the outlook be deemed hopeful; for it seemed that while values for these would be maintained, quotations for other sorts might fall even lower than before. Eventually this proved to be the case, and towards the end of 1898 prices for all but the best qualities fell to a point which has rarely before been touched, to the serious disadvantage of sellers everywhere, but especially to those who had hurriedly sold in Calcutta.

In the meantime, movements resulting from the low value of produce were in progress. At home, consumption received a stimulus from the keen competition among Distributors, which led them to offer to the public cheaper tea than had ever before been sold; while trade in general received an impetus from the renewed industrial activity which followed the settlement of the labour troubles of 1897, thus augmenting the purchasing power of the wage-earners. Abroad, from nearly all quarters came, by degrees, the larger demand for which long and careful preparation had been made; mainly due, without doubt, to the low quotations at which the kinds wanted by foreign buyers could be secured, but partly in consequence of diminished exportation from China; and as regards the United States, it is said, owing to stringent measures taken there to prohibit the admission of certain common kinds of Chinese tea.

As the months passed it began to be evident that the supply from India would be curtailed by the drought in Sylhet and Cachar; that the heavy yield once obtained from certain parts of Ceylon and India might not be kept up; and that a good deal of unprofitable and immature acreage was here and there being quietly abandoned. Everywhere the work of extension was so far suspended as to make seed practically unsaleable; while if the limit of Ceylon's producing power had not yet been reached, it was evident that we should probably receive from that quarter less than hitherto instead of more.

All these points were duly noted here, and their bearing upon the future was pointed out. But the Trade, long accustomed to abundant supplies and low quotations, were slow to believe that a change was impending, and being quite unprepared for it were eventually compelled to operate at advancing prices. They had, indeed, no option, for the modern system of business had left the country bare of the reserve stocks upon which in former times retailers could fall back, and so resist a rise in price. It had long been foreseen that whenever the position should justify a rise on its merits, and apart from the action of speculators (from which we have been fortunately free) the small stocks on which the Trade had accustomed themselves to work would make an upward movement sudden and pronounced:—and it must not be forgotten that when something occurs to *weaken* the position, re-action on the same lines may follow.

But whether that be so or not, we have now to deal with the fact that the unprecedented increase in the use of Indian Tea at home and the larger demand for both Indian and Ceylon Teas abroad have raised prices for the lower qualities to a point which has enabled those who had not the misfortune of a short crop to reap a better result of the year's work than at one time seemed possible, while opening to all who make them a brighter prospect for the coming year. For producers of the finer qualities, however, the effect has not been quite so beneficial —advance in the value of the cheaper sorts being generally prejudicial to the value of fine—but as a large portion of the fine crops were sold in the autumn at high prices, those who made them would have shown as good results as usual, if it had not been for the abnormally high freights and an exchange of 1s 4d or 1s 4¼d for the rupee.

We have now to consider how the near future will be affected by what has occurred. It is only reasonable to assume that many growers, tempted by the prospect of a good profit on a large crop laid down at a low cost, will make all the tea they can:—and because such a policy has not usually proved successful in the past, it does not follow that it may not be the best course for some to take now. The short Deliveries in May show that the need of the moment is a plentiful supply of low-priced Indian and Ceylon tea quickly brought to market, in order

that the wants of consumers may be at once met and the danger of a check to consumption averted. Failing such a full and free supply, traders will turn elsewhere; for opposed to the frequent assertion that when once British-grown tea has been used it will never be given up, stands the fact that the public have to take what retailers sell them; and some retailers have a way of using for a time anything that can be called tea sooner than raise the price to their customers or forego their accustomed profit. The door has already been opened here through which foreign rubbish enters, and it should be closed as soon as possible.

But there must be limits to this plicy. The production of large crops of low-priced tea should be left to those who can attempt it with the least hazard. It would be most imprudent for those in Assam, Darjeeling, or the highlands of Ceylon, whose estates can yield tea of fine quality to risk their pre-eminence. We have behind us the evidence of many years that demand for fine tea is an assured and constant feature of the home market, and although, for the time being, those who produce it may not be getting their due proportion of profit, this will be adjusted when liberal supplies once more come forward and the normal range of value between fine and common tea is re-established.

An ideal crop would be one containing the widest possible variety of character and value, with enough of the best to meet the home demand and to maintain the reputation of British-grown tea all over the world, and with a sufficiency of such as growers could afford to sell at low rates, in order to increase our trade abroad by supplanting the produce of other countries. New markets can neither be opened nor kept open with short supplies and high prices.

Recognizing how much of encouragement there is in the present position, we feel there are too many uncertain factors of the problem to justify the very sanguine forecasts in which some have indulged:—the quantity that may possibly be drawn from China by the prices now ruling is unknown; Ceylon as well as India, is liable to suffer, and has suffered from drought and blight; in India the difficulty of getting coolies increases; and though freights may be lower, an exchange at 1s. 4d. has still to be reckoned with. On the other hand, the Home Trade is in a strong position, abundantly supplied with capital; the advance in quotations was a genuine movement, entirely due to the fact that supply had fallen short of demand and not to any artificial manipulation of the market; stocks are lower than they have been since 1886, when the annual turnover was 50 million lb. less than it is now and the price of tea 50 per cent. higher;—and although an increase in the importation from India may be expected, very little more will come from Ceylon; there is consequently not much reason to expect to total supply from these sources will be larger than we require here, provided that a free consumption at home and abroad is not hindered by very high prices at the outset.

It is no longer necessary to enlarge upon the importance of gaining for our tea a better share of foreign trade, for the result of taking a few million lb. from the London market has been seen. It is sufficient to state that 92 per cent of the home trade, and 75 per cent of the Australian trade have already been secured, in order to show that we more than ever need the help of other outlets, if there is to be further development of the tea-growing industries of India and Ceylon.

As regards home requirements for the coming season, it should be safe to take the year 1898 as a criterion. The Board of Trade returns show that in that year we used at home or sent abroad 141 million lb. of Indian, 94 million lb. of Ceylon and 36 milion lb. of China and Java tea:—total 271 million lb. We should, therefore, be able to handle here without much difficulty during the season ending the 31st May, 1900, about 145 millions from India, 95 millions from Ceylon, and 35 millions from elsewhere—say a total of 275 million lb.

We refrain from details relating to manufacture, assortment and so on, respecting which managers must already be in possession of the information they need: but inasmuch as it is desirable that the requirements of Continental and American buyers should be studied by those who can produce the sort of teas they take, it may be useful to mention that the *desiderata* for those markets are—an even leaf, not broken or dusty; flavour rather than strength; aroma on the dry leaf: large breaks and sound packages made of the best material.

And whereas the stability of the home market is undoubtedly endangered for more by the excessive number of seperate invoices and breaks than by the actual *weight* of tea brought to sale when it is necessary to hold large Auctions, we would once more urge those who pack many different kinds or send forward small invoices at short intervals, in their own interest to do what they can (short of sending unassorted tea) to lesson the difficulty experienced by the Trade in handling the large quantities which must of necessity be brought to market during the busy months of the season.

WM. JAS. & HY. THOMPSON.

Showing the progress of the Ceylon Tea Trade in London:—

Season ending 31st May, 1897. Imported 92 million lb. Total of Auctions, 1,140,000 packages. Average price 8d per lb.

Season ending 31st May, 1898. Imported 93½ million lb. Total of anctions, 1,160,000 packages. Average price 7¾d per lb.

Season ending 31st May, 1899. Imported 93 million lb. Total of auctions, 1,105,000 packages. Average 8⅜d per lb.

London Warehouse Returns, including all kinds of tea, for the past three seasons, ending 31st May. (Estimated Weights):—

	1896-7. lb.	1897-8. lb.	1898 9. lb.
IMPORT:			
Indian ..	131,650,000	135,377,000	136,073,000
Ceylon ..	92,073,000	93,580,000	92,947,000
China ..	33,012,000	31,997,000	27,683,000
Java, etc. ..	3,606,000	3,682,000	3,849,000
Total ...	260,341,000	264,636,000	260,552,000
DELIVERY:			
Indian ..	126,165,000	129,399,000	142,646,000
Ceylon ..	90,677,000	96,303,000	90,150,000
China ..	39,691,000	32,895,000	29,436,000
Java, etc. ..	3,800,000	3,719,000	3,824,000
Total ..	260,333,000	262,316,000	266,056,000
Of which were Re-Exported about ..	33,300,000	33,700,000	32,700,000
STOCK 1ST JUNE:			
Indian ...	32,235,000	38,213,000	31,502,000
Ceylon ..	19,953,000	17,231,000	19,790,000
China ..	12,891,000	11,993,000	9,967,000
Java, etc. ..	865,000	827,000	812,000
Total ..	65,944,000	68,264,000	62,071,000

THE EXPORT TRADE OF CHINA.

Season	1897-98. lb.	1898-99. lb.
To England ..	31,000,000	27,000,000
To Russia* ..	26,800,000	24,800,000
To America ..	45,200,000	42,200,000
To Elsewhere ..	11,000,000	13,000,000
Total ..	114,000,000	107,000,000

* Overland trade not included.

THE EXPORT TRADE OF JAPAN.

	Year 1897. lb.	1898. lb.
To United States ..	35,000,000	31,500,000
To Canada ..	7,000,000	7,500,000
To Elsewhere ..	1,000,000	1,500,000
Total ..	43,000,000	40,500,000

TEA IN WESTERN ASIA AND EUROPEAN TURKEY.

Looking over the several replies received by Messrs. Cresswell, we find that in Turkish Arabia the bulk of the tea imported is Indian, and only about 5 per cent. from China and Java. The people are not tea drinkers, coffee being their beverage, but the Consul-General thinks it possible a change may take place in the habits of the people. In symrna, the Consul says the demand for tea is increasing, and there is room for further development of the trade; the tea used being a blend of India and China. In Salonica the use of tea is not general among the population, but appears to be extending rapidly. The Vice-Consul at Uscub (European Turkey) says tea is not largely consumed there; what there is, comes from Asia Minor. From Van (Asiatic Turkey) comes the intimation that there would be a good demand for tea there. All the tea comes from Constantinople, where it is mixed, but the people are not at all satisfied with the stuff as sold there. At Beyrout (Turkey) tea is not a national beverage, but about 15,000 chests pass through annually. There is little chance of developing the trade there. At Angora (also in Turkey) the tea-drinking population is increasing, tea being said to be taking the place of coffee. The British Consul at Damascus says the tea consumed there is Indian; that the habit of tea drinking is undoubtedly growing in the city, and the demand for tea will certainly increase in the future, though coffee is the beverage of the country. In Jerusalem the consumption of tea is on the increase, though the people are indifferent to the quality. The Europeans and the better class of inhabitants consume Ceylon tea. Her Majesty's Minister at Teheran (Sir M. Durand) says he is making enquiries as to the prospects of the tea trade in Persia, and will send the information as soon as possible. At Mohammerah (Persia) the British Vice-Consul says the imports of tea are increasing, and are likely to increase. Indian, Ceylon, China and Japan supply the demand, the tea being shipped by British steamer at Bombay. The British Consul at Ispahan (Persia) does not think there is much chance of increasing the tea trade of the place; but the tea imported is Indian, and the trade is entirely in the hands of Parsee Merchants, who have their agencies at Bombay. The Consul at Erzeroum says only Indian teas are imported, and that the people are great tea drinkers, while the habit is increasing from year to year. We notice that the tax or duty on teas in all of the cities referred to in the correspondence is low, ranging from 5 to 8 per cent. *ad valorem.*

THE PLUMBAGO TRADE IN CEYLON.

(*From Capital.*)

Plumbago prospecting in Ceylon, about which so much had been heard of late, can scarcely be said to be a profitable undertaking—at any rate as far as the generality of those engaged in the industry are concerned. And it seems to be understood that hardly one out of every ten embarked in this business makes any appreciable profit.

This statement might seem strange at first sight, for the plumbago trade has every appearance of prosperity. The prices prevailing are high, and during the last year or two they have stood higher than they ever have been. Moreover, the supply of plumbago is abundant, and plumbago mining is conducted in several parts of Ceylon, for the mineral has been found in localities where only a few years ago its presence was not even suspected. About two years ago the number of plumbago mines in the Colony was officially stated to be 299, and the aggregate annual yield of these mines was declared to be over 23,000 tons, while the value of this produce was estimated at slightly over 3½ millions of rupees.

There are various causes, however, which contribute towards rendering plumbago prospecting in Ceylon a non-profitable concern—at any rate not a generally profitable one. First and foremost, it would appear that there are considerable difficulties connected with the transport of plumbago from the mines to centres where markets can be found for it. The plumbago obtained from mines in the interior of the island is, with no little trouble, carried by means of rivers or canals to the closest Railway station, and is then trained to Colombo whence it is exported. As railways are not abundant in the interior of the island, the inconvenience and expense of such transport can easily be imagined.

Moreover, there are difficulties about the particular sort of timber which is required for the casks in which plumbago is exported. It appears that *hora* wood is the only kind of timber which answers this purpose, and it is stated that oasks made of any other sort of timber are ill-adapted for exportation of this mineral. Unfortunately this *hora* timber is becoming scarce in Ceylon, and high prices are being accordingly demanded for it, and thus the cost of transporting plumbago to a place of exportation is enhanced by the expenses due to the purchase of *hora* timber. Roughly speaking, the supply of *hora* is practically exhausted in the Western parts of the island of Ceylon, and it is now procured in the Southern regions. The price of 1,000 feet *hora* is at present about R70, whereas scarcely ten years ago the same quantity could have been purchased for R30. The *hora*, which is obtained in the Southern Province of the Colony, is conveyed at much cost to the railway line along the Southern Coast, and is then transported (by railway) to Colombo, the port of shipment. The cost of transport to Colombo amounts to about R15 or 20; and this item helps considerably towards maintaining the high prices of *hora*. If the railway authorities could be prevailed upon to reduce their rates, the trade in *hora* timber would probably increase a great deal, and if the freight could only be reduced to something like R5 per 1,000 feet, the plumbago trade might be run at a profit. Moreover, the local timber trade could receive a great impetus; and the crown lands in the south of the colony would doubtless then be taken up for the purpose of exploiting *hora* timber; but, as matters stand at present, these Crown lands are taken up merely for purposes of cultivation, for the timber trade is not sufficiently paying under the circumstances now prevailing.

While plumbago prospecting has not proved remunerative to the majority of those engaged in it, a happy minority contrive to make it profitable; and among these fortunate people should be mentioned certain persons who are known as District Mudaliyars, and who are the lawful guardians of Crown lands. A thorough knowledge of local conditions is necessary to understand how profit is made in these oases; but it is believed that the Government of Ceylon would be well advised to thoroughly investigate the matter.

Plumbago in Uva.—We learn that the plumbago work on Dambatenne, although so far not very remunerative, is encouraging. Others think of trying their luck, and "Capt. Boyd"—so says a correspondent—has a commission from the Poonagalla Valley Company to report and advise. Let us hope that the expert's visit will result in finding a rich paying vein.

Oil Engine.—We heard the other day of two of "Campbell's Oil Engines" doing most satisfactory work on a Kelani Valley estate and that, although fuel was abundant, they were preferred to steam, the cost of oil not exceeding half cent per lb. of tea. This should be encouraging news where fuel is *not* abundant, as in the central portion of Dimbula, for instance.

THE PROPOSED ABOLITION OF THE DRAFT POUND.

MEETING IN LONDON.

A meeting of the members of the wholesale and retail tea trade was held at the Commercial Sale Rooms, Mincing Lane, on Wednesday last, to oppose the proposed abolition of the draft pound by the Ceylon and Indian Tea Associations. The Right Honourable the LORD MAYOR, who was called to the chair, explained the purpose for which the meeting had been called. He said that he had great pleasure in presiding over that numerous and influential meeting, because he felt that it was a matter of great importance to every wholesale and retail dealer throughout the United Kingdom. From time immemorial the pound draft had been a concession to the trade, sanctioned by the importers to cover all the various losses of the retailers occasioned by leakage, samples, &c., and now the Ceylon and Indian Tea Associations had made the astounding proposal that this one pound draft should be abolished. He would give the two chief reasons for their seeking to introduce so serious a change. First, it had the unanimous approval of committee of the two associations named. This seemed a very inadequate reason, for those represented by the associations would benefit by the change. Second, the profits on tea had been greatly reduced of late, but those present had only to take the dividends paid by the leading tea companies to see that this was greatly exaggerated. He had looked up the matter and found that the four leading companies interested paid dividends averaging from 15 per cent to 12½ per cent, and those were profits that could hardly be complained of. Personally, he (the Chairman) had given the subject very great attention, and in his judgment the proposed abolition of the one pound draft was most unfair and unreasonable, and further, the assigned reasons were wholly inadequate. He then called upon Mr. Thomas Lough, M.P., to propose the first resolution, viz: "That this meeting expresses its great surprise and regret at the ill-considered and drastic proposal emanating from the Ceylon and Indian Tea Associations to abolish the draft allowance on teas sold under sale conditions in London, which would inflict a very serious loss upon the tea trade in this country; and this representative gathering of the entire wholesale and retail tea trades protests against this one-sided and unreasonable change in the sale conditions."

Mr. LOUGH, in proposing this, complained strongly of the secrecy of the proceedings to which they had been subject, saying that he had heard nothing of the proposal till a fortnight since, although he heard now that as long ago as last March circulars had been sent out to India and Ceylon and distributed among all the tea-growers and their consent obtained to the proposal. He said there was only one party who would benefit by this proposed change, and that was the sellers. Another thing he had to complain of was that they had to pay 40 per cent. of the price of tea before they got the order of delivery. He said that those in the tea trade had a number of grievances that they did not complain of, but which would never be tolerated in any other trade, and that this pound draft, which was now their sole refuge, was not a concession because in the majority of cases it barely covered the losses arising from leakage, samples, &c. When, therefore, this was abolished it would leave the trade exposed to the full misery of the situation, and the real reason was the private profit of those represented by the association. The associations had in their circular stated what a large number of pound packages they had given away through this one pound draft, but this amount was only 1 per cent. on the whole sale of tea in this country. He trusted that they would unanimously accept the resolution, and that, with the consent of buyers and sellers, no change would be made.

Mr. HUDSON KEARLEY, M.P., seconded the resolution. He also said that it was a matter of history repeating itself, for in 1870 when Chinese tea had the monopoly, a similar proposal had been made and had been rejected unanimously, as he was confident this one would be. Such an alteration would seriously disturb the tea trade, and he thought that the fact of its being an old established custom ought to be sufficient to prevent the abolition of this one pound draft. He begged to make a single suggestion, and that was that if there was not already an organisation strong enough to represent the interests of the tea trade that they should form one out of that meeting and fight the importers' association.

SIR WILLIAM PINK, Mr. J Lecky, Mr. Heath Clarke, and Mr. J J Meakins, amongst others supported the resolution, and reiterated the opinions expressed by the previous speakers. The resolution was then formally put to the meeting and carried unanimously. Various gentlemen representing large firms in the provinces then warmly opposed the proposed abolition, giving as their experience that the one pound draft in the majority of cases barely covered the losses arising from leakage, samples, &c., and in some cases actually it did not cover them.

The CHAIRMAN then said that he had received a large number of letters and telegrams from firms in most of the large towns. The names of the towns and firms were then read. The Chairman called upon Mr. J. Innes Roger to propose the second resolution, viz. :—"That representatives of the following firms be appointed a General Committee, with power to add to their number, and to form an Executive Committee to deal, in conjunction with the Committee of the Wholesale Tea Dealers' Association, with any questions that may arise from time to time in connection with the subject now before this meeting." Budgett, Samuel, & Co., Limited; Burbidge, Pritchard, and Bartlett; Brooke, Bond, & Co., Limited; Co-operative Wholesale, Limited; Edwards & Sons; Hanson, S. Son and Barter; Harrisons and Crosfield; Home and Colonial Stores, Limited; Kearley and Tonge, Limited; Lipton, Limited: Lloyd, David, Pigott & Co.; Mazawatte Tea Co., Limited; Payne, Geo., & Co., Limited; Rowley and Davies Shuttleworth, W. S. & Co.; Tetley, Jos., & Co.' Travers, Jos. and Son, Limited; Tower Tea Co.

This was seconded by Mr. T. Smith, formally put to the meeting, and carried unanimously. After further shoot addresses from gentlemen present, all to the same purpose, the meeting concluded with a vote of thanks to the chairman.—*H and C Mail*, June 9.

THE PROPOSED ABOLITION OF THE DRAFT POUND.

To the Editor of the *Home and Colonial Mail.*

SIR,—As a regular reader of your valuable paper, I have noticed a letter in your issue of the 2nd inst., signed "A Tea Dealer," in which he argues that it would be more productive to squeeze a little off the Calcutta and London agents than to abolish the draft pound. In sup-

port of his contention "A Tea Dealer" states that the average saving to be effected by withholding the draft pound would only amount to 8d per average chest, whilst, according to his estimate, Calcutta Agency Commission amounts to 1s 6d, and London Agency Commission to 1s 9d per average chest.

I do not know how "A Tea Dealer" has arrived at these comparative figures, but I am in a position to supply some actual figures, extracted from the 1898 accounts of a company in which I am interested.

The company in question made in 1898 a total crop of 1,956,825 lb. of tea. The number of packages was 22,930, and the average gross sale price was 11 23-32d per lb. The 1 lb. per package draft was therefore 11 23-32d per lb. on 22,930 lb. or, say, £1,119 12s 7d. The Calcutta Agency Commission for the year was £474 13s 1d. The comparison in the case of the company in question is therefore not 1s 6d for Calcutta Agency against 8d for the pound draft, but 4 31-32d for the Calcutta Agency against 11 23-32d for the pound draft.

The company in question does not pay any London Agency Commission, but the accounts, show an item of £60 for rent of London office a moderate sum for office salaries, and auditors' fees, and certain other charges, which, as it appears to me it would be difficult to reduce.

On the whole I am not convinced by the argument that it would be more productive to squeeze a little off the Calcutta and London agents than to tackle the question of the 1lb per package draft.—Yours faithfully,

E. G. ROCK,

1, Great Winchester Street, London, E.C., June 6, 1899.

MINOR PRODUCTS REPORT.

CINCHONA.—There was a good demand for the small supply offered in auction on Wednesday, and the bulk sold at full rates to a slight advance, the average nnit working ont at 1⅝d to 1¾d per lb, and 2d for cinchonidine. A parcel of 99 bales East India was withdrawn upon instructions from India. The catalognes offered by the six brokers consisted of :—

	Packages offered.			
East Indian cinchona..	290 of which	165	were sold.	
Ceylon cinchona ..	245	do	245	do
South American cinchona ..	120	do	47	do
	655		457	

The following are the approximate quantities purchased by the principal buyers :—

	lb.
American and Italian factories ..	41,314
Amsterdam and Mannheim factories ..	26,663
Messrs. Howards & Sons	12,156
Brnnswick factory	9,344
Paris factory	3,220
Druggists, &c.	6,060
Total quantities sold ..	98,757
Bought in or withdrawn ..	40,041
Total quantity offered ..	138,978

CEYLON.—Succirubra, good rich chips, quilly, 7⅛d to 5½d for fair; medium, 4⅛d to 4⅜d; and fair root chips 3⅜d. Officinalis, chips and shavings 5⅝d to 6⅞d; renewed ditto 4¼d to 6½d per lb.

QUININE has again shown more activity, at rising prices, and when the market opened on Tuesday small transactions were put through, mostly for August delivery, at 1s 4½d to 1s 4¾d, an advance of 1d on Friday's prices; October delivery also changed hands at 1s 5d per ounce. Wednesday saw an advance to 1s 5d for August, and 1s 5¼d for Otober, with a fair business. Today it has been in good demand, and as high as 1s 5d spot has been paid; June 1s 4¾d, and August 1s 5d to 1s 5¼d.

VANILLA.—The exports from Bordeaux in 1898 were 741 cwt, as compared with 473 cwt in 1897; of this quantity 187 cwt. went to the United Kingdom, against 27 cwt in 1897. The stock of vanilla at the close of 1898 was 4,255 kilos., against 4,560 kilos in 1897, that in first hands being nil.—*Chemist and Druggist*, May 27.

THE TEA TRADE.

After a long and costly struggle, Indian and Ceylon teas are fast conquering the whole world of consumers by their now recognised superiority. Australasian prejudice was the first to succumb; then followed South Africa; the United States and Canada made a harder fight, but they, too, have given way; while Russia, the greatest market of all, is largely and continuously increasing its importations. South America, however, still remains faithful to mate or Paraguayan tea, as it is sometimes called. The decoction of this herb is altogether inferior to the genuine brew, but it has the advantage of being very much cheaper. That merit is more than counterbalanced, however, by its containing a higher percentage of theine, a drug which produces violent nervous excitement unless consumed in very small quantities, and the smaller the better. Possibly, the revolutions, which have been so common in South America had their origin, to some extent, in mate. The people themselves are sufficiently excitable without any adventitious aid to inflame their passions. Even from a purely political point of view, therefore, some benefit might come from the substitution of Indian and Ceylon teas for the indigenous herb. At all events, if that could be managed, great gain would result to our planters from securing a footing in an enormous stretch of country where, as in Russia, a liking for "the cup that cheers but not inebriates" is already firmly rooted. After South America is won over there will remain no more worlds for Anglo-Indian enterprise to conquer by tea.—*Globe*, June 5.

NEW AREAS OF CULTIVATION IN THE NORTHERN PROVINCE IN 1898.

As stated in my Administration Report for 1896, there is hardly any scope for extending the cultivation in the Jaffna peninsula. The following figures show the extent of the new area brought under cultivation as estimated by the headmen, and the extent sold during the year :—

	Private Land estimated by Headmen.	Extent sold at the Kachcheri.
Jaffna.	Acres.	Acres.
Fit for coconut ..	— ...	73
Fit for paddy ..	9 ..	72
Fit for garden ...	— ...	30
Mullaittivu.		
Fit for paddy ..	136 ..	367

The Assistant Government Agent of Mannar states that no new land has been opened in his district during 1898, and that there is no likelihood of any attempts being made to extend the cultivated area until after the restoration of the Giant's tank. There is a great opening for coconut cultivation in the Mullaittivu district, where the soil and climate are favourable. I refer to the remarks of my Assistant regarding this.—*Mr. Ievers's Report.*

SATINWOOD.

CHLOROXYLON SWIETENIA *D.C.*

Brandis in his " Flora of North-West and Central India " thus speaks of this tree :—" A common tree in the Satpura Range, the Dekkan, the Konkan, and the drier parts of the peninsula and Ceylon. A small tree in Central India, in South India attaining 30-40 ft. ; trunk straight, symmetrical. Bark yellow, soft, corky, ½ in. thick or more. Heartwood, with a beautiful satin lustre, fragrant, when seasoned, greenish white with a yellow tinge, or yellow, mottled, and feathered, close grained. Heavy the cub. ft. weighs 51-66 lb. when seasoned and 70-75 lb. when green. The value of P. has been found to fluctuate between 600 and 1059, and the average may be taken at 800. Has been compared to box, not found suited for engraving, but is excellent for turning. Employed for agricultural implements, cart-building, makes beautiful furniture and picture-frames. Imported into England, used for cabinet work and the backs of brushes."

My experience of Satinwood in India being most limited, my remarks apply mainly to this tree in Ceylon, where it atttains its best dimensions.

Distribution :—The annexed sketch map shows, roughly, the distribution of this tree over the island. It will be seen that it is only absent from the South-Western portion, *i. e.*, from the portions affected by the South-Western monsoon, and from the higher mountain ranges. I have seen some trees at an elevation of about 1,500 feet in the Province of Uva, and a few trees in the intermediate rainfall zone near Kurunegala, but, as a rule, it can be said that it is not found above an elevation of 800 feet, and in localities with a rainfall of over 65 inches. The finest forests are in the Northern portions of the Batticaloa district, and in the Puttalam district. In the Northern portion of the island, the trees, although abundant, do not attain very large dimensions.

Soil :—Satinwood requires a light sandy soil with good subsoil drainage. It is also found on well-drained rocky hills, if there is not too much clay in the soil.

Sylvicultural Requirements :—This tree is essentially a shade-avoiding tree, except perhaps in its infancy when, like other trees, belonging to the natural order of the Meliaceæ, it prefers side-shelter or low cover. It springs up readily in clearings, but is also found along the sides of forest roads and lines or growing in the midst of bushes in old clearings abandoned by the chena cultivator. In this respect it is a valuable re-afforesting agent; for, after the chena cultivator has cut and burnt off the jungle and cultivated it for two or three years, a rank growth of spiny and prickly bushes springs up, which the Satinwood helps in again becoming valuable forest. In high forest, especially if the leaf canopy is not dense, or if it is not high, Satinwood seedlings germinate readily enough, but they require the aid of man to develop into trees. It is for this reason that in Ceylon forests of a certain age, although large and medium-sized trees are not uncommon, there is a remarkable absence of saplings and poles. This has led Mr. Vincent, in his valuable Report on the Ceylon forests, to state that the natural reproduction was poor. The contrary is, however, the case ; but up to recently the Government did not do anything to replace the trees taken away by helping the young seedlings, and no cleanings or seed-fellings have been carried out. It appears to me that the correct treatment for Satinwood is to girdle trees for some distance to leeward of the seed-bearers, in sufficient numbers to give light to the soil without encouraging the growth of rank grass and weeds, and far enough to let the light seed, which is carried to some distance by the wind, have a chance of developing into seedlings. As the seed ripens before the North East monsoon, the girdling should be done early in the year, and at the same time all large climbers which invade the crowns of the trees should be cut. After the seed has germinated and the seedling established itself, it requires direct overhead light, and this should be provided, but caution must be exercised in not girdling too many of the dominant trees, for this might lead to an invasion of insects which would be liable to attack the seedlings as well as the girdled trees.

Dimensions and Rate of Growth :—Satinwood grows to a large tree, except in wind-swept localities near the sea, where it attains only small dimensions. The crown is large, as can be expected with its light, feathery foliage; the bole, although it attains a girth of 8 or 9 feet is usually comparatively short, *i.e.*, rarely over 30 feet in height. This is due to the requirements of light by the tree which early forms branches in order to develop a large crown. As regards the rate of growth of the tree, the data which we have at present are unfortunately not very reliable on account of the small number of trees in each sample plot and in consequence of the habit of mixing up trees of different girth-classes, and of calculating the average girth for all. This method of measurement has now been given up and the trees are measured by girth-class, and it is hoped that in a few years reliable data will be obtained. I have gone carefully into the figures available and the following appear to me to give a fairly correct idea of the rate of growth of an average Satinwood tree.

Age of tree	18 inches	in girth	..	20	years
do	do	3 feet	do	..	45 do
do	do	4ft 6in	do	..	75 do
do	do	6 feet	do	..	125 do

If this estimate of the rate of growth proves to be correct, it takes 50 years for a tree 4ft. 6in. in girth to reach a circumference of 6 feet. If, therefore, the exploitable size is taken at 6ft. as it is now in Ceylon, it would be proper under the selection method of treatment to go over the forest in 50 years, taking all the trees 6ft. and over which can be spared from a sylvicultural point of view. In all forests, it would be better still to go each year, on an average, over one twenty-fifth of the area, taking only one-half of the exploitable stock or confining operation to trees whose removal is most urgent.

We have not yet sufficient experience to know, in the event of the Regular Method being adopted, how many years before the final fellings the seed-fellings should be made. Observations made in our forests since 1891, show that the Satinwood flowers abundantly every year and it is probable that seed-fellings made some 7 to 10 years before the final fellings, would give a good crop of seedlings.

Enemies.—This tree, like others belonging to the same natural order, is liable to attacks from insects which bore into the pith of the young shoots. A large number of trees die from the attacks of the larva of a beetle, probably a longicorn, which makes galleries between bark and wood, that not unfrequently girdle the tree. The young saplings are very liable to injury by stags, since these prefer them to any other trees for rubbing off the velvet from their horns. This preference is probably due partly to the corky nature of the bark and partly to the gum, which exudes from wounds and soothes the irritation which the animals feel. In some parts of the island the trees are liable to the attacks of a fungus, which rots the centre of the tree and causes a clean hole, sometimes throughout the length of the bole. This is the case particularly in the South-Western portion of the island. Satinwood does not resist fires well.

The Timber.—The weight of 12 well-seasoned pieces taken by me from different parts of the island, varied from 55·2 lb to 65·4 lb per cub. ft., and the average was 59·92 lb or cub. ft. This is a somewhat average than that of the specimens higher tested by Mr. Smythies in 1878, which averaged 57lb. Seasoned wood can, therefore, be said to be lighter than water. The wood is hard and strong, takes a beautiful polish, and is extremely durable. The most valuable wood is that which is known in Ceylon as "flowered," and in the home market as "figury" wood, especially if it is light coloured and can be used together with West Indian satinwood. The price of

flowered satinwood in Colombo ranges from R4 to R7 per cubic foot in the log. It has not yet been ascertained what the figure in the wood, which is merely curly fibre, is due to, and whether it is hereditary. It was found in some abundance in one of the forests of the Puttalam district, which was exposed to the full blast of the monsoons and wind may have something to do with it, but I think that it must be due also partly to the soil. There is streaky and curly flower, and it is the latter which gives the prettiest effects of satin-like lustre and which fetches the best prices in the market. Unflowered satinwood fetches prices up to R2·50 per cubic foot according to colour and size of the logs. Light-coloured logs are preferred although the darker ones are better for patching up old cabinet work. Logs of a dull, muddy colour are not appreciated. The best logs as regards colour and size are now obtained from the forests in the East of the island. Fine logs used to be obtained from Puttalam, but these forests have been more or less exhausted by timber traders in the old days. The finest logs I have seen were eight to nine ft. in girth.

The logs for the home market are sent to the Central Timber Depot in Colombo, where they are tested for "flower," and the flowered logs set aside. Hitherto they have been sold according to market rates; but, in future, on account of the great demand for flowered logs, the latter will be sold by auction. The proportion of flowered logs is not much above 5 per cent. Satinwood is also sold at the Forest Depots or, when possible, standing in the forests. This has been the case in the Eastern provinces, where first-class logs have been stamped over one-sixtieth of the area, but the sale of the *coupes* was effected after the picked logs had been felled and sent to Colombo.

The strength of the wood has not yet been tested with pieces of a proper size, the largest specimens tested having, according to Gamble, a cross-section 2 in. square. I have not much faith in tests made on pieces of timber which may be taken from any part of a log, and should like to see the example of the University of Sidney followed, where Professor W H Warren tests pieces of timber of the dimensions ordinarily employed for construction. According to Gamble the value of P. varies from 504 to 1,059, but I think, that, on an average, it will be nearer 1,000 than 500.

The uses to which this timber is put in Ceylon are the following:—

Cabinet work and furniture. Satinwood furniture is however, heavy; and is really suitable only when finely made, as in the case of Chippendale patterns. In cart-building it is used for the naves and spokes of heavy carts. It has been much used for house and bridge building, and the bridge at Peradeniya, near Kandy, consisting of a single arch 205 ft. wide, is built entirely of this wood. Ball-room floors made of Satinwood are considered good, but to my mind they are too hard, wanting in elasticity and much too hard, too slippery for dancing. Sleepers made of this timber have lasted over 20 years on the Ceylon Government Railway, and experiments are now being carried out in the new Colombo Harbour-works to test its resistance to the *teredo*. The pieces have only been put in position a year ago, but so far they are intact. In the North of the island the wood is used for oil mills; and in the Eastern province, hollow logs are in great demand for wells. Ploughs are usually made of this wood.

Minor Products.—According to the Dictionary of Economic Products, this tree yields a yellow dye and a wood-oil. I have, however, never heard of these products being employed in Ceylon. The bark, like that of other Meliaceæ, has medicinal properties, and a gum exudes from it which might prove to be a good substitute for gum arabic. A. R. Broun in *Indian Forester*.

Colombo, 28th March, 1899.

THE PLANTING SEASON AT ZANZIBAR.

The spell of dry which we have experienced for two years has at last terminated and the country from end to end will now be busy planting. 7.13 inches of rain fell at Dunga on April 2nd 6.07 inches; being recorded between 5 p.m., and 3 a.m., and 10.18 in the great rain of the 23rd. Sweet potatoes, muhogo, Indian corn, mtama, ground nuts, rice will all have been put in. We have called attention elsewhere to the expediency of planting cloves and the same urgency may be pleaded in favour of coconuts. Arabs don't plant now-a-days; a few hundred coconuts here and there perhaps, but nothing more. What will be the state of this country in another decade or two if the yearly waste among the cloves and coconut plantation is not repaired? The rearing of a coconut plantation is a long but not a laborious or expensive process, and money put into a coconut plantation is like money put into the bank, and at good interest too. We can understand the reluctance of Arabs to embark upon new ventures like cocoa, coffee or vanila, until something definite has been ascertained as to their suitability to this country but every planter on the island knows the value of the coconut industry.—The *Shamba*, March, April and May.

COFFEE CULTIVATION IN CEYLON AND THE STRAITS.

We are indebted to Mr. E. V. Carey for an interesting letter addressed to us on his experience of Liberian coffee and hybrids from Coorg plants in the Straits. It is too soon to draw conclusions as to the success of the latter, but so far all is promising; and it is certainly of interest to learn that the hybrids are free from the leaf fungus pest. Long may they continue so!

Meantime we learn from a very experienced Ceylon planter that coffee in Udapussellawa at 5,500 feet elevation and more or less under dense shade, is cropping well this year. There is hardly any "bug" to be seen on this coffee and *none at all* where the shade is very dense, although the crop is just as heavy as in the open—indeed heavier. This, our informant remarks, "conveys a lesson; but it comes too late." But then, we would remind him how shade did not save the well-known Hopewell coffee in Hantane, rising up to 4,000 feet; and we have a clear recollection of a delightful coffee clearing on Nilambe estate in the middle "seventies," which, we believe, was opened very carefully under shade; but where is it now? Nevertheless, we sincerely trust that the experiment in Udapussellawa at a much higher elevation, and on splendid virgin soil, may continue to be very successful.

CATTLE FOR NORTH CEYLON.

Nearly a thousand head of bulls and calves were landed last week at Kayts, being brought from Puliyur in South India by some Moors. We also learn that some of the Maniagars, during their recent trip to the metropolis, purchased and brought with them some very fine cows from the Government Dairy.—*Cor.*

NEW COMPANY.

Anti-Tannic Tea Infuser, Synd Ld. (62,257).—Registered May 24th, with capital £8,000, in £1 shares, to acquire the business carried on at 180 West Regent St. Glasgow, to adopt an agreement with John Marshall, to carry on the business of manufacturers of and dealers in china, hardware, and household utensils, and to cultivate and deal in tea, coffee, cinchona, and other produce. The number of directors is not to be less than 3 nor more than 7; the subscribers are to appoint the first; qualification £100; remuneration £75 each per annum (£150 for the chairman Registered by King and Co. 77 Gresham St., E.C.—*Investors' Guardian*, June 3.

HOW TO MAKE GOOD TEA.

At the suggestion of a well-known planter interested in the reputation of Ceylon tea, we printed off 500 cards and sent them on board the ss. "Olympia," in the hope that each recipient of Sir Thomas Lipton's generous gift of a 5lb.-box of tea will take care to follow the directions:—

[*With the compliments and good wishes of the Editor "Ceylon Observer."*]

HOW TO MAKE A GOOD CUP
FROM
PURE CEYLON TEA.

First fill your kettle with FRESH water; then see that it really BOILS. Next warm your TEAPOT, and put one small teaspoonful of tea for each cup required; then pour on the required quantity of boiling water, infuse for FIVE minutes, then pour off the tea into another teapot or cups ready for use. [Milk and sugar added according to taste.] Thus treated, Ceylon Tea will give a liquor, pure, delicious and fragrant.

On no account should a second brew be obtained from the same leaves.

THE INDIAN TEA CAMPAIGN.

The "Times of Ceylon" has dragged us into the arena of its little sparing match with the *Madras Mail*, not "to see fair play," but as a supposed ally. We must disclaim the honour. Our contemporary introduces us in these terms:—"Meanwhile there is a little paper, known as *Planting Opinion*, which is produced much nearer to the planting districts of Southern India than the *Madras Mail*; and it does not back up the separation idea at all. It reproduces the first editorials on the subject; and is delighted that Travancore Associations are subscribing to the central fund." We need not go into the geographical question, as our greater proximity to the planting districts is a mere matter of yards, if not of inches. We would only say, that when, some little time ago, we urged South Indian planters to push onwards, and to combine for the purpose, we were mostly in favour of *South Indian* combination. That we approved of Travancore subscriptious to the I.T.A. is true. Better half a loaf than no bread at all. Our Colombo contemporary accuses our Madras neighbour of affecting a lack of perception after the former's statement that Ceylon wants the co-operative system revised because the present one is unfavourable to herself. But the *Mail's* question was to the point:—"If Ceylon has had less advantage than India out of co-operation up to the present time, why should she wish to continue a system that is unfavourable to herself?" It is, we think, absurd to suggest that India has reaped a greater advantage than Ceylon out of the joint efforts of their Commissioners. It is perfectly clear that Ceylon would not wish to continue co-operation, unless she saw something to be gained by it. As for South India, she is too small to help her big brethren materially, and, consequently, if she co-operates, can only expect to reap very small benefits, unless she attempts to get an unfair share on the sly. This would be a course unworthy of her. Of course, it is impossible for her to conduct a campaign on broad lines such as those of the Ceylon Planters' Association and the Indian Tea Association, but that she can quietly and at small cost bring her teas under the notice of buyers in various markets is beyond question. Hers cannot be a series of massed operations, where numerals count for nought so long as the battle is won. On the contrary it most be the advance of a small but resolute body of men, bent upon making every shot tell, knowing that the "shot in the locker" is not over-plentiful.—*Planting Opinion.*

TEA COMPANIES' ACCOUNTS.

There is a proverb to the effect that "Speech is intended to conceal one's thoughts," and there is another common saying that "Figures can be made to prove anything." Whatever truth there may be in the former, there need be absolutely none in the latter; for accounts properly kept, can only show, and show plainly, *facts*—alas! too often, hard, logical, stern facts. But what can be, and often is, done, is to unwisely mix up the different branches or heads of account; with a result following, that no clear perception of facts, as they really are, is practicable. It has long been a matter of complaint, both in England and in India, that the accounts of some public companies are far from being as perspicuous as they might be, and ought to be. This is the more to be regretted in India, because so many shareholders are almost permanently absent from Calcutta. A man may be, and in regard to tea often is, a shareholder in several companies. He takes up the accounts he has received, and finds probably a different system and classification adopted in each. He tries to make some comparison, but finds it impossible.

It may, therefore, not be out of place to suggest greater uniformity and more particularity of detail. If it be answered that those concerned have it in their power to obtain information at any time, on any point, from agents, we would remark, in the interests of agents themselves, that it would be found to add greatly to their labour and inconvenience if such references were at all frequently to be made. It may be said, if the experience of agents is that such references are not as a rule made, we would reply that when a shareholder finds his investments unprofitable, he will probably be inclined to take a little more interest in his affairs than he is now found to do. Or if, again, it be argued by the executive that it will be time enough to change when shareholders think it worth while to demand it, we would say, rather anticipate any objections that may possibly be made, and show that you are desirous to prove that you have nothing to conceal, but that, on the other hand, you invite the fullest examination of every part of the company's expenditure. We know very well that directors and agents are blamed sometimes unjustly, and held responsible for inevitable results, which they have earnestly striven to mitigate the effects of, in the interests of their shareholders. The more clearly explanations are put before those concerned, the better for all parties.

Speaking generally, we think that a statement of expenditure should be absolutely separated into garden and Calcutta outlay. By Calcutta outlay we mean that really *appertaining* to Calcutta, and not including, as is often the case, garden stores purchased, or garden payments made, in Calcutta.

Regarding the item of "stores' outlay" only such portion as is actually consumed during the season should be entered to debit of the year's account, and this figure should be derived from the garden at the end of the year, supported by detailed lists of stock on hand. For all stores purchased, the agents would keep "Suspense Account" with the garden, writing off "deficiencies" only, annually, and carrying forward "balances" as an asset. There is little trouble or risk attending this plan, which, indeed, some have adopted. The mere fact of the purchase of a certain amount of stores during the year, does not necessarily entitle that amount to be altogether debited in that year's account, but we believe it often *is* so done. Thus matters are made to look worse than they really are, besides which, if the manager is paid partly by commission, he may stand, thus, to be much prejudiced in any one year, and the next he may die or leave.

The expenditure on the *garden* during the season is, (except in respect to bonuses, new machinery and buildings), of course, all fairly debitable to that season; but it may be quite otherwise in respect to certain items of payment through agents in Calcutta. We would, as we say, have only so much of that expenditure as really belongs to the season, entered in the statement of the *year's* expenditure. Supposing, for instance, an original batch of three years' agreement coolies to be forwarded, 50 per cent. only (say) of engagement and importation cost should be debited to the first year—the remainder being recoverable during the next two years. The same may be said, also, of coolie bonuses, only in this case, as the people have become, then, acclimatised, the cost might fairly be distributed equally over the whole period of re-engagement. This is sometimes done, it should be always done; and so, also, as to the matter of stores proper, before adverted to.

We would greatly multiply the headings at present in use. There is no difficulty, trouble, or expense in so doing. Vouchers being made out for every item of expenditure, and submitted for passing to the competent authority, it would only need to endorse, on the face of each voucher, when passing it, the account to which it was to go. These vouchers being properly posted, shareholders would thus be able to see, at a glance, what was the amount of each main item of expenditure; and assuming that a uniform system was thus theadopted, a comparison of the cost of working, the several companies could readily be made taking into account, of course, their relative acreage, and any special circumstances prevailing.

At present tea companies' reports can scarcely be said to afford sufficient information to shareholders, nor are the accounts detailed in a manner sufficient to permit of that examination and comparison which it is the duty of the shareholders to make, and which, we submit, it would be desirable that agents should render easy and practicable, even in their own interests.—*The Planter*, June 17.

PLANTING NOTES.

Ceylon Tea in America.—We direct attention to the communication by Mr. Pineo published in another column in which it is shown that the way in which to secure and 'hold' the consumer is by working through the retailer who should be assisted in every reasonable way by the Commissioner in advertising and through demonstrations.

Fertilizers should not be allowed to come in direct contact with the seed of any crop. This caution is constantly urged in fertilizing pamphlets and otherwise, but most of us fail to properly heed it. Careful and scientific tests have shewn that "ammonia nitrate of soda, chlorate and sulphate of potash and ammoniated superphosphates exert an injurious effect upon the germination of seed in general." But this can be wholly avoided by mixing the fertilizer with the soil.—*Hawaiian Planter's Monthly.*

Jarrah-Wood Paving in London.—Australian wood as a paving material is ousting the softer woods previously in use in London. In the report to the Vestry of the Chairman of the St. Pancras Department of Works it is stated that the hard Australian wood lasts longer and decreases splashing. The western section of Euston Road was paved seven years ago in section of Swedish, Jarrah, and Karri blocks. The Swedish timber broke up so rapidly that a vote of urgency had to be obtained for replacing it with the Jarrah blocks.—*Home paper.*

The Opium Trade of Bengal: Immense Increase.—It is notified that during the calendar year 1,900 not more 44,400 chests of Bengal opium will be offered for sale, and not more than 3,700 chests in each month; also that not more than 2,000 chests each month will be Benares opium, and not more than 1,700 Patna opium. No reduction in these quantities will be made without three months' notice. The figures show in a striking manner how production must have increased in the North-West Provinces and Oudh, Ghazipur and Patna having changed places in respect of the quantity of opium manufactured. —*Pioneer*, June 25.

A Living Advertisement for Ceylon-Indian Tea.—Thus the *American Grocer*:—A. Nicholson, of New York, resident representative of the Ceylon and India tea growers, was a welcome visitor among the "trade" here last week. Mr. Nicholson is a worthy specimen of our English cousins, and if he has thus developed by the stimulating effects of Ceylon-India tea, he presents in his physical and social qualities a "big card" to encourage its more general use. Mr. Nicholson states that the sales of the above tea in Philadelphia are in the proportion of 500 chests as against 5 chests five years ago. Coupling the above facts, we shall certainly look for a generation of Quaker giants when our growing tea-drinkers shall mature.

Coffee in Mexico.—The "North American Review" has a paper on "Mexican Haciendas—the peon system"—that is the labour supply. The writer makes out that of the three divisions of Mexico, "cold," "temperate" and "hot," haciendas (plantations) in the last pay best, and up to a few years ago were calculated to yield a yearly interest of 14 to 15 per cent. and to repay outlay in half-a-dozen years. From "coffee" even now, we are told, a yearly income of 20 per cent. on the value of plantations in 1892 can be got; while a majority of the coffee investments established five or six years ago now yield from 40 to 150 per cent. on the sum of their cost. This is too highly coloured to be accepted; because we cannot believe that the hard-headed Ceylon planters, who exploited Mexico in 1897, would have declined to invest, had there been such profits available.

COFFEE-GROWERS should not be discouraged by the present low prices, says the *Hawaii Planters' Monthly*. This is sound advice, and is based on conditions that are a repetition of the history of the coffee trade. Higher prices will again return, as they have in the past. In 1886 there was an era of low cost, and the industry being unprofitable, the planters neglected their plantations and no new areas were cultivated. The supply was out of relation to the world's requirements, and an era of high prices followed, and this stimulated coffee-planting in Mexico, Central and South America, and in time has brought out an excess of supply and present low prices. There is no excess of fine coffee, and the result is the wide range in quotations—from seven cents for low grade up to 33 cents for the finest raw Java and Kona.

INOCULATION AGAINST RINDERPEST IN INDIA.—In the last issue of the *Pioneer* to hand we learn that successful experiments in inoculating cattle had been made in the N. W. Province of India, at the instance of Capt. Rogers Imperial Bacteriologist. Care was taken not to prejudice the natives against the measure, a Tahsildar or Deputy collector being sent to the village where our outbreak was announced; he assembled the chief landlords and *raiyats*, explained the use of inoculation and asked them for their consent without which no operations were performed. The Lieut.-Governor of the Province expresses the hope that general inoculation of cattle would follow upon the successful first experiments at Bareilly. In Ceylon there has not been evidence of so much prejudice as in India and the importance of preventive measures to check rinderpest in the island is equally great.

INDIARUBBER IN FRENCH AFRICA.—We direct attention to an interesting Report (see page 110) on Rubber operations—in hand, intended or advised—in French West Africa. Besides the indigenous *Landolphia*, the four best-known American kinds (Para, Castilloa, Ceara and (or) Maniçoba) have been introduced; and although it is too soon to get results, yet there is a good deal of interesting information afforded, especially from an official point of view and we see that both the French and Belgian (Congo) authorities are most fully alive to the necessity of replanting in order to make up for the present ruthless waste of rubber-yielding trees and creepers by the natives in their harvesting. How this is proposed to be done, we must leave our translation on page 110 to say.

AGRICULTURAL CONGRESS AT THE PARIS EXHIBITION.—A programme has reached us by a recent mail of the coming Sixth International Congress of Agriculture to be held during the Paris Exhibition next year from July 1st-8th. With it comes a printed letter from M. Jules Méline, President of the Commission, in which he states that the Commission appeals to agriculturists and farmers of every land, asking them "to lend their aid in increasing the importance and the *éclat* of this great reunion which should draw together the bonds that already exist between the agriculturists in all countries." Sir Ernest Clarke, Hon. Cecil T. Parker, and Mr. R. W. Granville-Smith are to represent Great Britain on the Commission. But as far as we can see, the subjects to be discussed concern Agriculture in Europe alone.

USEFUL TIMBER TREES.—The Queensland "Agricultural Journal" gives particulars of several timber trees which seem easily grown and very useful: first, there is "The Swamp Oak," *Casuarina glauca*, growing 30 to 90 feet with a diameter of 9 inches to 3 feet, according to soil and locality, and of which we are told:—

The timber of the Swamp Oak is of a reddish colour, beautifully marked and very close-grained. It is also hard and durable, strong and tough, and is valuable, and much used for shingles and staves. It is also useful as a cabinet wood. The straight saplings make splendid rafters for bush buildings, and old trees, with plenty of heartwood, make good posts, lasting well in the ground. All the *Casuarinas* are splendid trees for planting. They are all of very rapid growth, and make good breakwinds, copses, or shelter plantations. The saplings are always useful for many other things besides the speedy supply of excellent firewood which they give. These trees form one of the most striking features of the Australian landscape. Their leafless branches and black, gloomy, sombre appearance always make a sad impression on the traveller, and whenever there is a slight breeze there comes from them a dull, depressing sigh. They are remarkable as belonging to a class of trees which abounded in the forests of other countries in long-past geological ages, as is evidenced by the fossil remains frequently found in the coal measures. The Swamp Oak, besides being a quick grower, is a very beautiful tree if planted apart, its tall, straight-stemmed trunk and pendulous leafless branches showing well.

Next the "Horse-tail Oak," *Casuarina equisetifolia*, 50 to 150 feet high and 12 to 30 inches in diameter:—

The Horsetail Oak produces a dark-coloured timber, coarse but closely grained, beautifully marked, hard, light, and tough. It is useful for shingles, staves, and veneers, and for all purposes where lightness and toughness are required. Its timber makes splendid fuel, giving great heat and leaving very few ashes.

The "Erect She-Oak," *Casuarina suberosa*, 30 to 50 feet by 12 to 24 inches in diameter:—

The timber of the Erect She-Oak is of a dark-brown, very prettily marked, coarse in the grain, but hard and tough. It is a handsome timber, strong and durable, and is very valuable. It is used for bullock-yokes and hurdles, shingles, staves for buckets, kegs and tubs, mauls, &c. It is also useful in cabinet work and for veneers.

The "Forest Oak," *Casuarina torulosa*, 30 to 80 feet by 9 to 24 inches in diameter:—

The timber of the Forest Oak is of a reddish colour, and very nicely marked. It is a handsome wood, sometimes remarkably heavy, and of great strength, hard, tough, and close in the grain. It is in much demand for durable shingles and furniture-work, and is also much used for yokes for bullock drays and wagons, and for staves. It is also valuable for cabinet work, and gives a handsome veneer. It furnishes one of the best timbers for fuel, and is thus greatly in favour both for domestic use and for heating bakers' ovens. It burns with a clear white ash, and leaves no cinders. It is a tree which is worthy of cultivation, for when growing on good soils it makes a handsome tree.

The editor adds on the Casuarina generally:—

All the *Casuarinas* ought to be planted more frequently than they are. They are all fast-growing trees, growing as much as 3 and 4 feet in one year in height, and are all useful. There is no waste, for the timber of all species makes excellent firewood. Besides this, they make excellent breakwinds or shelter plantations. For general beauty and use (in so many ways) they are hard to beat, and farmers and settlers might do worse than plant some of them.

Perhaps Mr. Nock may be able to tell us how some of the above have grown at Hakgala, or are there any at Peradeniya and in Colombo?

AN ENTERPRISING PLANTING COMPANY.

Southern India, having shown the way in the introduction of electric tramways, is now showing the way in the introduction of electric ropeways for ghaut work. One of the links in the communications between the sea-board and the Kanan Devan Hills in North Travancore, where the big planting coocern started by Sir John Muir is now spending huge sums in developing tea and other cultivation, will be a ropeway for the ghaut section between the hills and the Madura plains which will be quite unique in several respects: (1) it is being built locally in the Planting Company's own workshops; (2) it is to be driven by electricity; (3) it is one of the biggest undertakings of the kind in existence; (4) it rises over 4,000 feet in 2¼ miles. The light railway from Ammayanayakanur, on the South Indian Railway, for which a concession has lately been granted to Messrs. Wilson & Co., and which is about to be put on the market in London, will run right to the foot of the ropeway. Then, on the top of the ghaut, from the upper end of the ropeway, a light single-rail tramway, on Ewing's system and worked probably by electric motor cars, will run for 22 miles through the tract of country that is now being opened up for cultivation. Some idea of the amount of work that is being done on these Hills and the amount of capital that is being spent, may be gathered from the fact that there are some 75 Europeans employed there at present. A correspondent now up there writes to us:—"It is a beautiful country, but inaccessible at present. However, when the ropeway is completed (a few months hence, it is hoped) one will be able to go up the ghaut in half an hour and pass from the red-hot climate of Kotagoodee at 2,800 ft. to the beautiful climate of Kundale at 6,000 ft. It is opposed to start a hill-station here before long. It will be laid out in such a way that the drainage will be perfect and typhoid fever unknown. Arrangements will be made for constructing one or two lakes of very considerable size, into which trout and other fish will be introduced. The whole of this new planting district is now connected up with telephones, so that every one is practically in communication with the whole world from his bungalow. And last, but not least, the climate is very fine." The moving spirit in the enterprise is Mr. Davidson, formerly of Ceylon, who has been working from dawn to dark every day for the last 18 months initiating, guiding and controlling the numerous important works that are connected with the Company's big programme of operations. Seldom, if ever, we should say, has a tract of hill country been opened up so quickly and, comparatively speaking, so thoroughly. It is a wonderful example of what energy and enterprise can do when backed by sufficient capital.—*Madras Mail.*

TO SUPPLANT TEA.

SOUTH AMERICAN HOLLY, MAKING THE ATTEMPT.

Our cup of tea is threatened with a rival in our affections, and one no less formidable than "mate," the tea substitute of Buenos Ayres, Paraguay, and other South American territories. The shrub from which it is made is the ilex paraguayensis, and looks like an English holly tree, which, in fact, is one of its cousins. Not only the leaves are used, but the whole plant—stalks, bark, and all—after being dried, is chopped up rather finely, and is ready for use. The mate cups are made of gourds, the stalk part forming a short of handle at the side, and a little opening is cut in the top. The tea, stalks, dust, &c., are put into the cup, and boiling water is poured over it. You take your mate through a tube—instead of a straw—with a strainer at the end. Milk and sugar can be added, and the mate poured into everyday cups, but that is not the really professional way of taking it. The beverage is paler and more

bitter than our own tea, but those who have learnt to like it drink it far more lavishly than we drink tea. In fact, English residents in South America say that mate is the one thing continually in evidence there. Entering a bank to do business the usual thing is to have a smoke and a cup of mate before mentioning the object of the visit, and at every house the visitor learns that it is a breach of etiquette not to accept a cup. At a party or circle of friends a larger mate cup is passed round, and everyone takes a suck at the same tube.

Old stagers who have lived out in South America for a score or so of years cannot do without their mate, and have it sent over here to them; but you may break yourself off the habit if it is not too inveterate. The British Acting-Consul in Paraguay is bringing the mate under notice; but it is doubtful whether it will ever seriously challenge our own tea.—*Morning Leader.*

MINOR PRODUCTS REPORT.

Cocoa Butter.—In auction at Amsterdam, on June 6th, 70 tons Van Houten sold at 73¼c to 77c, 3½ tons Helm at 74¼c to 75¼c, 3 tons Hamer at 75½c, and 10 tons Suchard at 75c per half kilo. In London, on the same day, 65 tons Cadbury's brand sold at 1s 2½d to 1s 2⅞d (average 1s 2⅝d, against 1s 2½d in March).

Quinine is quiet, and in consequence, easier. Spot transaction include B. & S. or Brunswick at 1s 4⅝d to 1s 5d. August delivery 1s 4⅞d to 1s 5d; June delivery at 1s 4¾d per ounce; and spot 1s 4¾d. with buyers at 1s 4d. French can be had at 1s 4d. In auction two cases Zimmer, containing ten tins each of 100 oz, were bought in at 1s 4¼d per oz.

Areca Nuts.—Fine Ceylon partly sold 25s per cwt.

Cardamoms sold with fair competition at slightly dearer rates. The following was the range of prices:—Ceylon-Mysore, fine medium to bold pale pods, 3s 11d to 4s; good bold steady 3s 10d; medium to bold pale 3s 5d to 3s 6d; dull small to medium ditto 3s to 3s 3d; bold dull long pale 3s 2d; medium lean pale 2s 6d; pale medium long 2s 10d to 2s 11d; small pale long 2s to 2s 4d; long dull bleached 2s 9d; very small lean 1s 9d; medium dull long 2s 2d; good splits 2s 3d; long, lean and split 1s 6d to 1s 9d; brown splits and pickings 1s 8d. Ceylon-Malabar fair to medium lean palish 1s 11d, and small brown lean 1s 8d; fair wild Ceylon 2s 6d per lb. Seeds, good brown 2s 4d; mixed seeds 2s 2d. Shipments from Ceylon from January 1st to May 16th were 216,087 lb.

Cinchona.—In auction the demand was for crown and grey bark only, which sold as follows:—Good bold pale Crown Loxa 7½d per lb; 1 c.c. damages 5½d to 6½d; second class 3¾d to 4¼d; and fourth class 2d. Dusty grey Huanoco, broken was bought in at 5d, and Bolivian cultivated calisaya, thin was limited at 10d per lb, and Cartagina, flat at 4½d per lb. Four bales of flat calisaya brought 4d per lb, subject to approval. The shipments from Ceylon from January 1st to May 16th were 284,371 lb. The stocks in first hands at Amsterdam on May 31st consisted of 2,403 packages Government and 9,896 packages private bark. The arrivals last week in Amsterdam were 2,553 packages The "Netherlandsche-Veem" reports the cinchona bark shipments from Java during May at

	1899	1898	1897	1896	1895
Amst. lb	943,000	672,000	600,000	768,000	402,700
Jan.-May	3,964,800	3,884,000	2,510,000	3,260,000	2,879,700

while the "Vriesseveem" received a telegram from Java announcing the shipments from May 2nd to June 5th at 1,156,000 Amst lb, and from January 1st to June 5th at 3,848,403 Amst lb.

Citronella Oil.—Dull of sale, at 1s to 1s ½d per lb in drums on the spot, and for August shipment there are sellers at 10⅝d per lb c.i.f. in drums. A parcel of 5 packages catalogued as guaranteed to pass "Schimmel's test," sold without reserve at 11d per lb; other parcels of good odour were limited at 1s 1d per lb. The Ceylon

shipments for the week ending May 9th were 19,788 lb, and from January 1st to May 9th they have been:—

	1899	1898	1897	1896
Lb ...	393,275	482,356	443,775	359,404

Vanilla.—Moderate supplies were catalogued today, and mostly sold at 1s higher as follows:—Madagascar, 8 to 8½ inch 15s 6d; 7 to 7½ inch 14s; 6 to 6½ inch 13s 6d; 5 to 5½ inch 12s to 12 6d; Seychelles, good chocolate 5 to 6 inch 17s to 18s; 4½ to 5 inch, 16s. Bourbon fine bold, 8 inch 26s 6d; 7 to 8 inch 26s; 6 to 6½d inch 28s; 6 to 7 inch 20s; 5 to 5½ inch 23s; 3½ to 4½ inch 22s 6d; mixed sizes 10s 6d to 13s 6d per lb.—*B & C Druggist*, June 10.

FROM THE NILGIRIS:—CINCHONAS.

Mr. T. C. Anderson and Mr. A. E. Scovell returned recently from their trip to the Nilgiris, highly pleased with the visit and all they saw. The little Railway up to Coonoor is working well now and is a great convenience:—three bogie carriages with an engine behind make an up-train. The line is now being carried on to Ooty itself and may be prolonged down one of the Western Ghauts. Mr. Anderson met Mr. Standen, Superintendent of the Government Cinchona Gardens, who had been on a three months' trip to Java (where he saw succirubra trees two feet in diameter), to Darjiling, &c. He thinks very highly of Glen Morgan hybrid trees of which there are 40,000 of a mature age. These Mr. Anderson thinks of coppicing this year: his bark has analysed over 6 per cent. The seed is very carefully collected only when fully ripe and from mature trees. —Tea is also doing well on Glen Morgan.

KANAN DEVAN PLANTERS' ASSOCIATION.

ANNUAL REPORT OF COMMITTEE.

In presenting the Annual Report, the Committee congratulate you on the absence of cholera from the District, largely due, they believe, to the steps taken by His Excellency the Governor Madras to improve the sanitary condition of Bodinayakanur. The success of last year's planting in the District, coupled with improved prices both for tea and cinchona, make the outlook for the future satisfactory. Coffee prices are unfortunately low, but crops all round have been exceptionally good this year. The absence of the Chairman on a well deserved holiday, and the departure of the Secretary, Mr. Sharp, to another District, leave blanks in the Association, which are felt by all. The improvements in Post and Telegraph service are greatly appreciated, and it is to be hoped that the improved postal facilities between these hills and Madras may very shortly be extended to Ceylon. The Committee regret that the inadequate medical grant of the past was entirely withdrawn last year, but trust and believe that this District will be put on an equal footing with the other Districts in His Highness' territory in the near future. The Committee regret that, while all other South Indian planting Districts have had or are having cart-roads cut to them, the prospects of a cart-road to this District are no nearer than they were a year ago. Your Committee are thankful that plague has practically disappeared from Southern India. Your Committee are also thankful to see that the Government of India have under consideration a labour ordinance, which will meet the requirements of planters and also give some security for advances in the future. There has been an abundance of labour in your District during the past year, and now, with better facilities for procuring food-stuffs, there seems every likelihood that this satisfactory state of affairs will continue. Another marked feature with regard to the labour-supply is the increased number of old Ceylon trained coolies now coming in from their villages to work on these hills for small advances of under R10 per head. These coolies, to a young District with a large acreage of tea coming into bearing necessitating trained factory hands, will be very acceptable. This result has undoubtedly been partly brought about by recent gratuitous advertisements in Ceylon papers, for which the Committee desire to thank those who are responsible.—*M. Mail*, July 3.

TEA COMPANY REPORT.

EMPIRE OF INDIA AND CEYLON TEA.

The directors, in their report for year 1898, regret that the results for 1898 were unsatisfactory and disappointing. The year began well; but as it progressed, several causes contributed to a poor result. The weather was, on the whole, unfavourable. Exchange advanced from 1s 39-32 d, to 1s 4 1-32th d, which reduced profits by £4,000. Higher ocean freights also increased the cost of bringing the tea to market. The tea market was depressed until near the close of the season. No one was responsible for this conjunction of misfortunes, and it should not be forgotten that the year was one of crisis and difficulty for all tea gardens. But the directors regret to have to add that on some of the company's gardens there was a mismanagement and a neglect on the part of the members of the staff, which undoubtedly contributed to the failure of the year's results. Mr. George Moore, a director of the company, who has had a long and successful experience in tea planting, went out to India in last November, and has spent nearly six months on the company's Assam gardens, investigating the system of working, and carrying out reforms. While bearing testimony to excellent work on some of the properties, Mr. Moore felt constrained to replace the managers of three of the company's gardens by more efficient men. Having regard to the general position of the tea industry, and to the improvements which have been effected in the local organisation at the gardens, the board hope, with some confidence, that the year 1899 will result favourably. Including the amount brought forward from last year of £143 3s 9d., the availabe profit is £20,084. The board recommend the payment of the preference dividend of £10,950, and a dividend on the ordinary shares of 4½ per cent. per annum, which will absorb £8,988, leaving a balance of £145 to be carried forword.—*H. & C. Mail*, June 16.

Ceylon Tea in Canada.—From a leading wholesale merchant in Montreal we have received a communication in which he says:—"Ceylon Tea is selling well here and becoming more popular every day: prices are also up several cents lately: incidentally I may say I have had a good season and feel bright."

Tea "Fluff" for Dyeing Purposes.—A correspondent writes:—"*Re* the statements about shipments of bad tea from Colombo, can the London Customs people be making a mistake, in supposing that local shipments of tea 'fluff' for dyeing purposes are meant to be used for tea infusion. This 'fluff' has been several times exported recently." We scarcely think a mistake could be made about tea "fluff"; but ought not the cases containing it to be marked as for dyeing purposes, to prevent any misapprehension?

Correspondence.

To the Editor.

TEA ON VIRGIN SOIL; AND HOW FLAVOUR IS KEPT UP BY PROPER CULTIVATION.

June 15.

Dear Sir,—I see in one of your leaders you quote Mr. T. C. Owen as saying—"Do what he could, he could not keep up the quality of tea to what he got the first few years from tea in virgin forest land."

I am well aware it is easy to sweat lands by allowing plants to grow up and spread out to their own sweet will and to allow them to bear fruit or leaf to such an extent that the trees will soon become sickly, will not be able to bear even part of the crops they did before and even the crop they do bear is of inferior quality—why is this? Well, the pump of the tree has been used to the utmost of its capacity and the roots became contracted, so sap could not be taken in sufficient quantity to nourish the fruit and leaves,—leaves drop off and fruit does not get ripe or get the same flavour as fruit did on same tree before it was allowed to overbear.

On the other hand, an experienced Agriculturist is able to grow fine trees on land where not even a blade of grass did grow before he took in hand this barren land. Your own *Tropical Agriculturist* books of the past, bear evidence how, I, on Maria, tended one Arabian coffee tree grown up as native coffee and picked one year, one bushel and one measure parchment from that tree. 2.—How I planted one tea seed in another part which became a tree 25 feet high. 3.—When I had one cacao tree which gave three varieties of cacao from three branches, and another from the stem 20 feet high. 4.—How I planted out tea plants on Raxawa estate after my Agents advised me to sell the plants, as that soil would never grow tea, got some bushes to spread seven and eight feet, and tea now giving over 600 lb. made tea per acre and tea of good quality. 5.—How on Frankland estate, where at first cacao would not come on by judicious manuring, I have many trees over 20 feet high and had excellent crops—from the same estate. I sent you the largest cacao leaf grown in Ceylon, and sent also the largest pods.

You will remember how I have repeatedly written advising the use of green manure (weed and foliage from trees), cattle manure. The latter is purchased from villagers by some planters because it costs on the spot from 3d to 6d a cart-load. They, however, forget that it is not pure cattle manure but a mixture of cattle-dung and earth, besides village cattle eat all kinds of foliage even lantana, so you get a lot of seed in your manure, and in addition you take to your estates, beetles and their eggs, which require to be picked out. Then also you require one basket full to each tree, whereas I warrant ½ basket of poonac and straw-fed cattle manure collected on roadside cattle shed, carefully heaped up on a stone floor will be twice as good as one basket village rubbish; but green manure is the most essential to keep trees up to the original standard, and in Ceylon we are blessed with a large variety of plants and trees which I have discovered and I will undertake to increase yield and improve flavour in tea, with this green manure, wood ash, lime and in some cases bones added in any part of the island.—Yours faithfully,

JOSEPH HOLLOWAY.

USEFUL TIMBER TREES (CASUARINA.)

Dear Sir,—With reference to your notes on the above in the *Observer* of the 16th inst. (see page 122) *Casuarina equisetifolia*, as well as some other species of the family, finds in Ceylon a congenial home, growing rapidly and producing seed in abundance both in the low-country and up to about 4,500 feet elevation. A tree of this in Peradeniya Gardens which was killed by lightning in 1896, was found to measure 150 feet in length, with a girth of over 11 feet at the base (which was buttressed), the diameter being over 40 inches, thus exceeding by 10 inches, the maximum diameter recorded for it in its native country, Australia. In India the same species has been rather extensively planted, especially in unreclaimed areas, for the purpose of supplying fuel to the railway, as the wood makes good fuel and leaves but little ashes. The heart-wood is hard, heavy, and fairly durable, though in the latter quality it does not equal some of the Ceylon woods, *e.g.* Palu, Satinwood, Keta-kala, &c. The Sinhalese call it "Kassa-gaha," meaning whip-tree, on account of the slender cord-like leafless branches; while in Australia it is known under the names of She-oak, Forest oak, Beef-wood (on account of the colour of the wood), Horse-tail oak, &c. The latter as well as the specific names signify the Horse-tail herb of temperate climes. This is one of the handsomest species of Casuarina, and is highly esteemed as an ornamental pot-plant in Europe.—Yours faithfully, X.

BAMBARA "BEE."

Sir,—Is there any other man in Ceylon who tamed the Bambara Bee. I kept them in an open bee box in my verandah, till their young were ready to fly, when one day in my absence they left the box and had settled on three different trees, but my cooly was afraid to catch them in boxes I had prepared, and when I came back I could not trace them.

J. H.

[We rather think the late Mudaliyar Jayatileke of Kurunegala—a great bee-keeper—succeeded well with the two indigenous bees of Ceylon. Does "J.H." recall the experiences of Mr. Benton, the American Apiarian, when here?—Ed. *T.A.*]

THE PRICE OF ANNATTO.

Dear Sir,—In answer to your enquiry, the present low price of annatto is said to be due to a falling-off in the use of the dye for colouring cheese in Germany to which country the seed was chiefly imported from Africa. It remains to be seen whether this seed has gone to other countries and sold at the lowest prices. This gives rise to the suspicion that chemical or aniline dyes are more in use now for purposes for which annatto was used before. The fall of prices in 1890-91 was due to over-production in Ceylon. But the following year the price of cacao rose, which led to annatto lands being cleared and cacao planted. From what was still left, care was taken not to export the dye in *seed*. The manufacturing works at Crystal Hill started purchasing all the raw material produced in the island.

This had the tendency of gradually raising the price again; and the trade preferred buying the made dye rather than the raw seed, as it came to be known that while the latter does not keep long but deteriorates, if kept unused for more than five or six months, the former can be kept for any length of time—in fact it develops and improves in strength the longer it was kept. Of course, the present low prices have affected the Ceylon-made dye too, and except in Holland there has been no demand for it anywhere else in Europe for the last eighteen months or so. Under the circumstance the present insect pest so destructive, both to the crop and the plant, seems to be providential.—Yours truly, PLANTER.

HYBRID COFFEE IN THE STRAITS: FREEDOM OF COORG COFFEE TREES FROM LEAF-DISEASE.

Klang, Selangor, Straits Settlements, June 15.

Dear Sir,—In the year 1895, I got some Coorg Arabian seed over here and planted eight acres, in two patches of five and three acres each, on hills in the middle of large Liberian clearings.

From an economic point of view, this result was not a success, though at first the trees came on splendidly; but grown at sea level in this latitude, a satisfactory result could hardly have been expected: blossoms mostly brushed, owing perhaps to insufficient shade, and the trees have never at any time up to the present yielded more than 50 to 60 berries each. But the experiment has not been altogether without interest, inasmuch as plants raised from the seed of these trees are showing distinct hybrid characteristics, taking more after the Arabian parent, but being fuller in the leaf and with their primaries further apart. At present the few hundred plants I have growing are only about six months old from seed, so it is impossible to say how they will turn out; but in view of Mr. Cameron's extremely interesting report upon coffee in Coorg, I need hardly say they will be watched most carefully.

Perhaps the strangest feature of this small experiment has been the fact that I have never seen a spot of leaf-disease on one of the Arabian trees yet, although the two small clearings are surrounded with Liberian, scarcely a tree of which is free from it. When the surplus plants were very thick in the nurseries, two or three, certainly not more than half a dozen, were attacked with a spot or two, and I then rooted up and destroyed the nursery, but though I have often examined the two clearings very closely, being struck by the strange phenomenon, not a sign of *Hemileia* have I ever detected.—I am, dear sir, yours faithfully,

E. V. CAREY.

RUBBISH IN TEA.

Upcountry, June 26.

Dear Sir,—I fancy the stuff your London correspondent describes as taken out of 14 chests of tea must have been the results of tampering with chests after they left the factory and tea was in transit. Such tampering has been known, but it is not always found out.—Truly yours,

FACTORY BULKED.

RUBBER-PREPARING MACHINE.

June 26, Upcountry.

Dear Sir,—Can you tell me if Mr. Thomas Christy's Rubber Machine has arrived in the island, and who are his Agents in Ceylon?—Truly yours,

RUBBER-FARMER.

[We cannot answer: possibly this publication may bring the required information.—Ed. *T.A.*]

HOW TO INFUSE CEYLON TEA.

Dear Sir,—May I call attention to a small omission in Mr. Kelway-Bamber's handy and useful *brochure* on the Dietetic Value of Tea? He says (4) "put the required quantity of tea into the hot tea-pot," etc.—*but* nowhere specifies "the required quantity!" Now, of course, the great advantage of Ceylon over China tea for Australia, America and the Continent is that you need not use so much: the old rule was a good tea-spoonful for each person, and one for the pot. With Ceylon tea, the one for the pot and some more may be dispensed with.—Yours truly,

HOUSEKEEPER.

[We obtained through the courtesy of a friend, a copy of the above, and agree with our correspondent that the "little omission" requires to be supplied in what is otherwise a most excellent and instructive little guide. In our own little pamphlets, cards and hand-slips we have said:—"Put one small tea-spoonful of tea for each cup required."—Ed. *T.A.*]

IMPRESSIONS OF KALUTARA TEA DISTRICT.

Ambagamuwa, July 3.

Dear Sir,—If my impressions of what I saw of the Kalutara tea district can be of any interest to your readers, the following is at your disposal. In company with yet another K.T.B. I proceeded last week to Kalutara, taking ad-

vantage of this truly slack season to spend a few days with an old friend whom I had not met for years, he having severed his connection from Ceylon quite ten years ago and only recently returned to once more toil in our midst. Of the journey to and back from Kalutara to Polgahakanda I will say as little as possible. Suffice it to think I have arrived there with my framework quite entire. We took the shortest route out, viz., via Dodangoda: the last three miles or so of this road would take a lot of beating, -road! save the mark, it was more like a newly-ploughed paddy-field; my only experience of such another beauty in the highly-favoured Central Province is the 3½ miles from Katugastota bridge to the sixth milepost on the Galagedara road, where I have a small totum.

Plumbago mining is much in evidence all along the Dodangoda route. Our driver pointed out a hillside planted in tea and coconuts, with large embankments thrown up of clayey-looking soil heaped along the lower edges of this hillside. On inquiring as to what it all meant, we were told it was "Hector Mahatmaya"'s plumbago pit, and that half the men employed were at that present moment working *under our Perambulator.* Pleasant sensation!

One does not begin to realise that tea would grow as it does in Kalutara until you are well within the hill-country of this district. Once passed the Dodangoda toll bar, the formidable range of forest-clad hills burst into view; it will not be too much to say that the forests of Kalutara are second to none I have yet seen in Ceylon; the soil too is very friable, save in some parts where cabook is seen to advantage; but yet I have seen as good tea growing in cabooky soil as would well compare with the tea growing on Kalutara's best alluvial deposits.

Heatherley, Pantiya, Clontarf, and Polgahakanda estates, which I have seen, would be hard to beat. On the first-named totum an all-round yield of 550 lb. per acre was almost secured for the year ending 30th June, so said the young Superintendent! On Polgahakanda 500 lb. per acre is expected for 1899, 31st December, and with good reason. This estate is looking in fine heart under the able management of my good old friend. Nothing less was to be expected.

We had a very pleasant time of it, the proverbial hospitality of the planters not being one shade behind in Kalutara to that of the general run. In fact, my genial host and hostess will take the places anywhere. Polgahakanda has a factory quite suited to its wants a brand new (8 or 10 H P.) horizontal engine supplying the power. Up to date rollers and desiccators were in full swing, taking the leaf—heaps of withering accommodation. The wind and rain was much in evidence; yet the flush was there in appreciable quantities. Would I could say the same of *the country* where Noah launched his cruiser.

Clontarf has a new factory in course of construction. Taking this district as a whole, my own impression is that the tea estates in the "Richmond of Ceylon" will take a lot of beating.

C. T.

OIL ENGINES.

Hatton, July 6.

Dear Sir,—I see in your paper of 5th that one of your correspondents that stick to facts or your P.D. has made a mistake. I allude to paragraph "Oil Engine"—you therein state oil engines doing most satisfactory work in Kelani Valley, &c., &c. The cost of "oil not exceeding half-cent per lb. tea." Now, Mr. Editor, I take that statement with a pinch of salt. Up this side I am told 2 cents per lb tea is about the cost, and I have heard of one man somewhere in Matale East, who says he can do it for one and half-cent. Could you give me the address of your half-cent friend so that we may able to do likewise?—Yours faithfully,

PLANTER.

[Our Kelani Valley friend will, we have no doubt, allow "Planter" to inspect his oil engines and see how cheaply they work.—Ed. *T.A.*]

Aerated Waters and Tea.—It was not so very long ago that the sickness on board of a favourite passenger ship of a favourite line calling here was traced to bad ice taken on board at Port Said. Our own leading Ice and Aerated Companies enjoy a high reputation; but it would be well that it should be generally known that neither freezing nor ærating renders impure water pure. An Indian contemporary contains the following useful warning:—

There is a general impression among residents in India that aerating water destroys any bacteria that it contains, but it has remained for an Italian physician to dispel this cherished delusion. This investigator found that bacteria grew and flourished when subjected to a pressure of carbonic acid gas equal to fifty five atmospheres, and that the liveliness of the typhoid bacillus was in no way affected by being exposed to an uninterrupted current of the gas. The purity or otherwise of a mineral water is, therefore, dependent entirely on the care exercised by the manufacturer in boiling and sterilizing the original medium. The extent to which this is carried out may be gathered from the fact it was ascertained during a cholera epidemic last year, that not one of the European manufacturers of ærated waters in one of our largest stations either boiled or filtered the water from which their mineral waters were manufactured

Patent Tea Machinery.—We have received from W. J. McDonnell, of the Ceylon P.W.D., some particulars of his patent tea-leaf cooler and oxidiser which had a successful trial in Ceylon last year. The apparatus consists of a blower connected by means of a pipe with the receptacle of a tea rolling machine. The receptacle is made with a lid or air-tight cover, to which the pipe leading from the blower is attached, and, on the air supplier being put into motion, a mid-current of air, of the temperature of the surrounding atmosphere, is made to permeate, with a downward action, the mass of leaf being rolled, keeping it cool and aiding oxidation. The covered in top or lid, together with the downward motion of the air, tends to retain the flavour in the leaf, which in the ordinary receptacle rises with the warm air through the open or partly open top and escapes by reason of its specific gravity, into the cooler atmosphere above the receptacle. An obvious advantage is claimed for this system, as the loss of flavour, due to the heating of the leaf during the process of rolling, cannot afterwards be remedied, no matter what treatment the leaf undergoes later on, nor how cool it may be kept. The apparatus has been successfully used it is stated, with results varying from ½d to 1d per lb. over prices obtained for teas made alongside in the ordinary manner. It is recommended that the blower be placed outside the factory, in order that the leaf may be treated with air of a lower temperature than that of the rolling room.—*Indian and Eastern Engineer*, May.

RUBBER-YIELDING TREES IN THE FRENCH SOUDAN.

In the *Revue des Cultures Coloniales* of June 5, 1899, we find an article on "The Exploitation of Caoutchouc in the French Soudan" which gives very recent news and shows how the French are now setting to work to make a wise use of their colonies. We give a special translation of the summary referred to:—

"We have received from Kayes the following interesting particulars:—The Governor of Soudan some time ago empowered a technical Commission to investigate in S. Soudan the Caoutchouc bearing zone, particularly as to the density of the growth of the rubber-bearing plants, the quality of the latex and the native methods of extraction. The sittings have now ended, and M. Hamet, the head of the Commission, has just given in information, from which it is evident that any undertakings for exploiting rubber in the Soudan are bound to be very profitable and that there is room in the Soudan for many such undertakings.

The rubbers were originally collected there under the auspices and under the control of the French military who gathered it partly as a tax and tried by this means on the one hand to prove to the natives the value of the exploitation and on the other hand to cause this Soudan product to be known in the European market. The rubber has gained a standing in the European market and often ranks after the rubber imported from Central America or even compares favourably with it. It was bought on the European markets at fr. 6·50 or fr. 7 or fr. 7·50 and the purchasers would still have freights, &c., to meet; and the price has risen of late. No trouble has been spared to secure the increase in value of the article. Schools of Agriculture have been started at Kouroussa to which natives from different rubber-growing districts come to learn the right methods for coagulation, &c.

M. Hamet also says "the Soudan rubbers compare favorably with those of the Belgian Congo, having all their purity, resistance and nerve and they also have greater resistance to heat."

M. Hamet and his co-workers have been studying the different kinds of milk-bearing plants native to Soudan: artocarpiæ, genus ficus, euphorbiacæ, apocynacæ, &c.

It is one of these latter, a Landolphia (hendolitic senegalensis) called, commonly *liane goi* or *gohive*, that gave the results referred to above. This creeper is one of the shrubs most abundant in the south of the Soudan. In places visited by the mission, its density attained to 100 to 150 plants to the *hectare* (about 2½ acres) 40 of the plants being very stout—rather thicker than a man's arm. These (8 or 10 years old) may give 8 to 10 gallons of latex a year. When the latex from this plant (the gohive creeper) is examined, says M. Hamet, one can see from the coagulation that it consists of two parts:—(1st) the liquid containing the rubber proper with albuminoid matter and a vegetable wax; (2nd) the serum which contains the constituent water, mineral matters and azotized matters which the rapid fermentation of the latex carries off before any coagulation takes place. On the other hand, these matters imprisoned in the bitter waters tend to deteriorate the rubber. It is these fermentable agents that it is absolutely necessary to destroy either before or during the coagulation.

These two operations are effected by the one stroke by using fluoride of sodium,—antiseptic and very strong in the proportion of 2% of the weight of the latex.

Other antiseptics, such as *formol, gaïcol, salol acid thymic* and ammoniacal acid do not coagulate,

M. Hamet has tried coagulation of this plant by the different processes in use in the country: First mechhanical; second by heat; third by smoking; fourth by chemical agents; fifth by decoctions of native plants. The yield of rubber has been independent of the process employed; practically, it has varied from 28 to 32 per cent. All the methods tried have given excellent results, specially the two last. Amongst the chemical agents employed must be signalized chloryhydric, sulphuric, oxalic and citric acid, marine salt, chloride of aluminium and finally ammoniacal and chlorohydric acid together. Finally, the native plants that have given equally good results are: the *guama*, the *do*, the wild sorrel, *somo*, lemons or limes and the tamarind. They have been used in decoctions which have been left to lie for a night and been filtered through a cloth the next day, then warmed up to boiling point before being used. The experiments have been made on *aseptized* latex and have brought about the coagulation of a rubber of very first quality.

But we must remark that, even treated by natives and without first being *aseptized* and with decoctions of plants of the country, the latex of the gohiva has given a rubber that fetches four to five fr. at Kouroussa.

M. Hamet sums up and concludes by affirming that the rabber furnished by the Soudan, especially the South, is of excellent quality, that the methods of collecting prevalent should be continued; that they are simple and easy even for children who go into the brushwood to collect it and that experiments are being made in the agronomic stations for the multiplication of plants.

THE COORG PLANTERS' ASSOCIATION.

The following are from Proceedings of the Annual General Meeting of the Coorg Planters' Association, held at the North Coorg Club, on the 1st ultimo:—

Crop.—The coffee crop just gathered was one of the best the country has given for some years; but, unfortunately, the poor quality of the coffee, owing to the season, and the great drop in prices, owing to the large Central American and Brazil productions, has deprived us, to a great extent, of the benefit of the good crop. The price of native coffee was also extremely low, and large areas have been abandoned by the natives and have gone out of cultivation. The official returns of the coffee crop for 1897 98 were 2,500 tons against 2,030 tons for 1896-97, and this year, in spite of the decrease of native coffee should show a substantial increase. Next year the prospects are almost universally poor, and a great deal of damage is reported to have been done by abnormally heavy rain in April. However, we can only hope for better quality and better prices. Mr. Cameron, whose services were so kindly lent by the Mysore Durbar, made tour of these coffee districts during November, and delivered two very interesting and instructive lectures at Mercara and Pollibetta, a report of which has been printed and circulated, and has also been sent to the U. P. A. S. I., and will doubtless form a subject for discussion at the next Meeting. Our best thanks are due to Mr. Cameron for the trouble he took, and for his very able and instructive lectures, and to the Mysore Durbar for lending his services.

Tea.—About 50 acres have been planted by Mr. Parsons during the year, but, owing to small plants being put out, the clearing was not so successful as it might have been. This industry is being watched with great interest.

Cinchona.—Owing to the rise in the price of this product, increased interest has been given to the hitherto-neglected cinchona trees, and several lots of bark have been sent Home for sale.—*M. Mail.*

PROGRESS IN THE FEDERATED MALAY STATES.

We envy the Malay States for the thoroughly just and scientific basis on which their system of revenue collection is based. Beginning *de novo* these Administrators were able to profit by experience gained in Ceylon as well as at Singapore. We have before us Mr. H. Conway Belfield's report on Lands, Mines and Surveys, Federated Malay States, for the year 1898, and from it we learn that the conbined Land Offices of the Federated Malay States have once again succeeded in amassing a revenue which exceeds former records and stands at the satisfactory figure of $637,699. The increase is progressive year by year. The credit for this advance is due, says Mr. Belfield, to the excellent progress made by the States of the Negri Sembilan and Pahang, the older States of Perak and Selangor having been both unsuccessful in attaining the totals achieved in the previous year. There is one principal reason, however, why the returns of the two latter States were no higher than as recorded, which so completely eliminates any suggestion of deterioration of revenue that it is well that it should be mentioned at once: "It is found in the determination of the Government of Perak and Selangor to restrict in some measure the alienation of mining land, so as to reduce the number of speculative purchases, and prevent as far as possible the locking up of lands for lengthy periods. The difference in the amounts of purchase money thus realised is far greater than the actual decrease of the revenues in each State, and is more than sufficient of itself to account for the whole of the falling off. The revenue derived from the recurrent and, therefore, more important items, such as Rents on Agricultural and Mining Lands, shew solid improvements." The following particulars of the quantity and value of tin exported are of interest. They are furnished by the Warden of Mints:—

Year.	Tons.	Piculs.	Price. $	Value. $
1894	... 23,552	... 395,631	... 39	... 15,047,748
1895	... 23,866	... 400,956	... 35	... 14,853,507
1896	... 22,811	... 383,227	... 32	... 12,339,909
1897	... 20,949	... 351,945	... 36	... 12,701,695
1898	... 19,703	... 331,007	... 43	... 14,177,101

We read that "the Survey branch, Lower Perak, measured up 36 town lots and one agricultural estate of 262 acres, and ran 74 miles of traverse. The district branch of the Survey Office sustained a severe loss in the unfortunate accidental death of the District Surveyor, Mr. Draycott, who was drowned in the Perak river on the 11th October, in consequence of a collision between the steam launch in which he was travelling and the ss. 'Canton.' I had inspected Mr. Draycott's office shortly before that date and had had pleasure in expressing to the Resident my high opinion of the value of his work. His death has deprived the Government of the services of an experienced and hardworking officer."

With regard to Ula Langat, we read:—

As a considerable portion of the agricultural land of this district has been devoted by the natives to the cultivation of coffee it is satisfactory to observe that the precarious condition of this industry has not caused diminution in the amount of Land Rents collected, which, though they did not reach the estimates, were nevertheless better than in the previous year. The total credited was $7,028·50. As in many other places, receipts on account of Forest Products also shew increases, attributed by the District Officer to improved supervision, which has been possible since the Forest Rangers were relieved of the demarcation work.

For Kuala Selangor, we read:—

There is little to report in connection with the European owned estates; upon two of them the planting of coffee is being continued, and planters have generally acted similarly to those in other districts in turning their attention to experiments in other forms of cultivation. The Selangor Coconut Oil Mill Company's factory is now in working order, and oil has been produced. It will be necessary to largely supplement the supply of locally grown nuts by purchases elsewhere.

In respect of Registration of Titles, Mining and even Land Enactments, Ceylon is, we suspect, behind the Malay States. This is how Mr. Befield winds up his very voluminous and able Report:—

The Land Enactment came into operation at the commencement of the year in all the States, and has, upon the whole, worked satisfactorily. Since its provisions have been submitted to the test of practice certain minor points have come to light in which it will be possible to effect improvement, but it has, I think wisely, been decided to defer amendment until the law as it now stands has remained in operation for a longer period. Land Officers would have found it much more easy to work the Enactment had it been possible to publish the Land Rules during the year.

The Registration of Titles Enactment was brought into force in Perak and slightly amended in Selangor during the year, and has worked smoothly. It was considered that the time had not yet arrived to enforce its provisions in the other two States.

The new Mining Enactment, which is much wanted, was discussed in detail at a conference of Residents presided over by the Resident-General at Kuala Lumpur, and formed the subject of prolonged correspondence. At the time of writing it has not yet come into force.

In preceding paragraphs of this report I have spoken of Settlement Officers and their work, and have attempted to emphasize the importance of their employment in all districts in which demarcation work is in progress.

A great deal is now being done every day throughout the States in the way of measuring up native holdings, but that is only one stage of this important work, and I am anxious that it should be more generally recognised than it now is that that work only becomes of value when it is accompanied and attested by the examination of the Settlement Officer. I trust that more general recognition will be accorded to this matter in the immediate future.

I may perhaps be permitted to close this report with an expression of the genuine satisfaction which is felt by the Land Officers of the Malay States and myself at the really remarkable progress in the collection of Land Revenue which has been a feature of the administration of these States from the commencement of Federation to the present time. The improvement has been effected concurrently with the institution of radical changes of system, and the introduction of laws and regulations novel to the officers who were called upon to enforce them; that results such as those recorded have been attained not only speaks volumes in favour of the changes made, but testifies to the assiduous manner in which officers have studied the new procedure, and to hearty and well sustained efforts on their part to do their best for the Department by earnest application and constant personal industry.

PLANTING NOTES.

PINEAPPLES—writes Datu Meldrum from Johore—are a drug 80 (dollar) cents per 100, some have been sold as low as 60 cents per 100. Is nothing ever to be done with the fibre, or a temperance drink be made out of the pine, a fortune may be in it; but "brains" are wanted.

THE EMPIRE OF INDIA AND CEYLON TEA'S COMPANY.—The dividend on the ordinary share of the Empire of India and Ceylon Tea Company for 1898 is only 4½ per cent., compared with 9 per cent. in 1897. Other causes than the rise in exchange contributed (says the *Home and Colonial Mail*) to this disappointing result. Bad weather reduced the outturn on the Assam and Ceylon properties, and although there was a large increase in the crops of the Dooars gardens, the price of Dooars tea was lower. In addition, the directors state that there was mismanagement on some of the company's gardens, which undoubtedly assisted in causing the poor results. An investigation has since taken place; the management has been reformed, and with the firm appearance of the tea market better things are hoped for in the current year.

RUBBER PLANTING RESULTS IN MEXICO.—Writing in *Modern Mexico* from San Juan Bautista, the capital of the Mexican state of Tabasco, under recent date Clarence W Gano says:—"During the past few years many planters have turned their attention to the cultivation of rubber, and they are generally of the opinion that it is the most profitable crop that can be grown. One planter, Don Federico Calcanio, a few weeks ago sold the rubber from 2000 seven-year-old trees in San Juan for a net profit of $3000—an excellent return from ten acres of ground. The rubber tree increases its yield from the seventh to the fifteenth year, after which, if it receives proper attention, it will bring a steady income for two score years or longer. The method of planting is simple and inexpensive, and after the third year there is practically no care bestowed on the plantation beyond seeing that the trees are properly tapped."—The *India Rubber World*, June 1st.

SOCOTRA'S PEOPLE AND PLANTS.—A preliminary report upon the results of the scientific expedition to the island of Socotra has been issued by Mr. Henry O Forbes, Director of Museums to the Liverpool Corporation, who, under the auspices of the Royal and Royal Geographical Societies of London and of the British Association, and in conjunction with Mr. W R Ogilvie-Grant, representing the British Museum, undertook the investigation of the natural history of the island. The expedition occupied about six months, and the party discovered many species of animals, birds, insects and plants new to science. According to the report the Socotrians are only poorly civilised Mohammedans, living in caves or rude huts, and possessing few utensils implements, or ornaments, and no weapons. Still the explorers took back specimens of pottery of primitive quern-like mills of basket work, and of weaving apparatus. The plants, of which living specimens or ripe seeds, over 200 in number, have been taken to England, Mr. Bayley Balfour, Professor of Botany in Edinburgh University, describes as of highest scientific interest and of great commercial value being, unique out of Socotra.—*Pioneer*, June 30.

COFFEE IN BRAZIL.—A coffee plantation near Campinas, São Paulo, said to have been valued at 130,000$, was sold at auction the other day for 13,000$! That is a better illustration of the situation—says the *Rio News*, May 30,—than any we can find in the official reports.

THE RISE OF THE PORTUGUESE IN INDIA.—Upon the recent review of this work which appeared in our columns the author writes us an appreciative letter saying that the review was the first he had seen written by any one with a competent knowledge of the subject. He admits some errors and a share in their responsibility but on some points he would join issue with our reviewer. He writes:—

It is Barros who says (I allow the others differ) that D. Lourenso was ordered to search for Ceylon as well as the Maldives. It is Castanheda (ii. c. 23) who says that the pillar (which he describes) was erected at Gabaliquama "now called porto de Gale," the date 1506 is from Correa. I admit there are difficulties in the chronology. As to the loss of ships from the attacks of the English and Dutch there was more talk than damage. Falcão in his (p. 195) abstracts the loss as four vessels taken and three burned, total seven. From his detailed list of ships, however, I should say the totals should be five vessels captured, three burned and one run on shore, total nine—a number which did not seem to me to appreciably affect the percentage. At the same time I might have noted this cause.

CEYLON IN THE "LONDON TIMES."—In *The Times* of June 12th, received by the German mail, the following appears:—

CEYLON.—Our Colombo Correspondent writes on May 17:—The check which the interference of the Indian Government with the currency gave to productive enterprise is proving a blessing in disguise to tea planters at least, for there can be no doubt that if a rupeee of 1s 2d or less value had continued, the planting and production of tea would have far outstripped the demand, to the injury of the general body of planters. The sixteenpenny rupee stopped extensions and not only so, but has led to a contraction of cultivation by the abandonment of poor fields in some instances, so that, both from Ceylon and India, there is no immediate prospect of an increase of crops—while the United Kingdom is getting an almost less supply of our staple. The direct trade in tea with the Continent of Europe—notably Russia and Germany—with America and Australasia—is being carefully fostered, and must steadily increase. Meantime an improvement of prices in London has cheered our tea planters. Their restricted enterprise, however, has begun to tell on the general revenue, the quarterly return ending March 31 showing a comparative decrease—a warning to our authorities and the Colonial Office not to press unremunerative public works too much. "What single product can be (profitably) grown over 80 miles of our North Central territory?" was a question seriously propounded in an official quarter lately, and no answer could be given. An agricultural commission is now sitting to try and devise means to improve local agriculture, if not to establish an agricultural department. A commission to inquire into the incidence of taxation, as promised by Governor Ridgeway, is now eagerly looked for by the public. The defenceless state of Trincomalee and the need of railway communication with Colombo has recently attracted attention. The Colombo harbour works and graving dock have made good progress of late; the working season afloat for the former will now close with the advent of the south-west monsoon. Ceylon is to be well represented at the Paris Exhibition, especially in respect of our tea and general planting industries and in gems. The total export of tea up to May 16, 1899, to the United Kingdom is 33,457,229 lb., against same period, 1898, 34,288,943 lb., and to all other countries in 1899, 8,078,783 lb. against 7,723,624 lb. in 1898.

NORTH TRAVANCORE NOTES.

July 2.

TEA FACTORIES

are not so busy just at present, although there is a considerable quantity of leaf coming in. On the whole I do not think this monsoon quite so bad as it was last year; the rain measured up to date is much about the same but the wind probably not so strong.

I had the pleasure of taking a short trip down to some

COFFEE

estates in the Valley, a few miles away one day last week. Although but a short couple of days I enjoyed it very much, I was eager once more to behold old king coffee, and must say that the bushes laden with green berries, and in good heart was a pleasure to look upon—no sign of disease of any kind, the trees crowded with fine healthy wood, and now being all nicely "handled" out. The elevation of these estates is about 4,000 to 5,000 feet and certainly seems to suit the coffee tree. During my morning walk down through the heavy jungle my friend and self passed through a wealth of vegetation, enormous timber trees standing out here and there, and lesser ones loaded with creepers, a great number of which were in bloom, the colours of these being many and varied, but all beautiful. The lower down we descended they changed considerably, aud being more numerous, until we reached the coffee regions, where the hand of man has stepped in to try and improve upon the wealth of flowers adding climbing roses, and many other kinds introduced there, from the gardens of civilization. There are some 200 acres of new clearings now being opened up, but for tea and not coffee. Soil is good, but a good deal of rock about; it looked to be grand, lay, and soil for cinchona, too many rocks for tea, and I should say the cinchona trees in such land would grow to be giants. I was rather unlucky in my visit finding most of the Valley men away attending

I have been on the out-look for some time back for any news regarding what we call our

TRAMWAY

from the flat country west of Bodinayakanur. This tram is being erected from the bottom of the Ghaut up to Yellapatti, this latter being the top of the hill, or rather gap in these hills. It is on the principle of some tramways which I have seen in Ceylon, but only much stronger, I had some little news of it the other day, and from what I could learn it ought to be in working order, before this year ends. Loads of 5 cwt. will be carried up and down; loads will be fixed on rope every 500 feet, to be worked in middle by an engine. Should this work all right, which I see no reason to doubt, it will make an immense difference to transport of both goods and passengers (for the latter are to be carried). Engineers go first trip, of course, to show that they have every confidence in their tramway. Then from Yellapatti the road tramway will bring goods, etc., all the way on to Munaar and later on still nearer. The opening of this interesting and much-needed tramway ought to be quite a red-letter day for these parts. I may be lucky enough to be at this function and, if so, you shall have notes on the day's doings. With this tram going and a railway from the station called Ammayanayakanur via Perri Kolam aud Bodi to foot of the ghaut, we will be wonderfully much better off for transport of goods, etc.

KLONDYKE.

CULTIVATION OF SEEDLESS PLANTS.

Discussing some recent experiments of the Agricultural Department, the New York *Sun* says: "Under modern methods of cultivation the seeds of our best varieties of fruits can easily be dispensed with, as they are of little practical value. Seedling stock, raised from the wild or common varieties, answer the purpose as well as the rare or choice trees, and their usual combination of hardiness and virility influences the budded scions for good. Nature had already anticipated horticulturists in dispensing with the seeds and depending upon other methods of propagation. The banana, for instance, is a seedless fruit which nature has apparently changed through some peculiar process. Rudimentary seeds are to be found in the fruit today. By slitting the banana down lengthwise rows of the rudimentary seeds will be exposed to view. Undoubtedly at one time, in its primitive wild state, the banana propagated itself by means of seeds, but the use of suckers for this purpose gradually made the seeds of less and less value. Following out the law of nature, the seeds, becoming useless organs, degenerated. Occasionally a banana is found that does propagate itself by means of its seeds, or at least perfect seeds are produced in the fruit which can germinate. If for any reason the suckers of this plant should fail to do the work entrusted to them, it is not unlikely that nature would reinstate the seed organs and develop them gradually to their early responsible position.

"The pineapple and cauliflower are two other common illustrations of how nature oocasionally dispenses with seeds. The pineapple is almost seedless, and, like the banana, its propagation is entirely by suckers. The seeds are in a low, rudimentary condition, but at one time they must have had their function to perform in life, and they are capable, under stress of circumstances to renew their vitality. The type would not be exterminated if the suckers should fail to perpetuate the plants. All the resources of the plants would go to the assistance of the seeds to develop and vitalize them once more. This has been found possible by experiment. By selecting the pineapple with the most promising seeds, and propagating them by the usual process, the seed organs have gradually been developed until they are able to reproduce their kind.

"The eggplant is more interesting than either the banana or pineapple. Here we have a fruit which is only occasionally seedless. That the seeds are really immaterial to the welfare of the plant is evidenced by the fact that perfect fruits are often developed whether the blossoms are fertilized or not. If the hands of the horticulturists it would be an easy matter to produce eggplants that would have only the slightest trace of rudimentary seed organs, or vice versa, it would be possible to develop a class of fruits that would be supplied with an abundance of large, full-grown seeds.

"Nature's hints, thus supplied in a few isolated cases, have been the opportunities of man to raise a class of seedless fruits. Sometimes it is merely a freak of nature that happens only once or twice in a generation, and if the opportunity is missed the loss is great. To this origin we owe our fine California navel orange, which is generally a seedless fruit' although occasionally a few small seeds are to be found in it. The navel orange was an effort of nature to produce twins, but one of the twins aborted, merely surviving as a protuberance in the blossom end of the orange, a little kernel enveloped in the skin, which closely resembles the human navel in appearance. In the effort to produce a monstrosity the seeds were apparently neglected. By taking the scions of this fruit tree and grafting them on seedling stock we have practically established a seedless orange. It is, further more, remarkable because of its excellent quality and size. Usually the freaks of nature produce fruits that are not very good. Thus quite a number of apple trees have been produced, the fruit of which is nearly or quite seedless. Their origin has been largely the same as that of the navel orange,

They are generally abnormalities, and they are often called 'bloomless,' because the blossoms have no petals and sometimes lack stamens. Their appearance and quality are not such as to recommend them to the general consumer. The core is small and insignificant, but the shape is peculiar and the flavor poor.

" But seedless apples and pears of good quality may yet be propagated, and gardners are working towards this end. Recent new varieties show great improvements over those first produced, and in the course of time careful culture and selection may bring about the desired results. How much the culture, selection and environment have to do with the proper development of the fruits is apparent in the case of the seedless currants of Corinth or the Sultana grapes of south Europe. These were supposed to have been as full of seeds as any other fruits far back in history, but successive years of culture and selection eliminated the seeds and improved the quality of the fruits. How the culturists first got their hint of seedless fruits is not known, but it is reasonable to believe that they took advantage of a freak of nature which produced a vine with fruits that had very few or no seeds.

"Experiments are now being made in California with the famous Muscat grape of Alexandria. This famous raisin grape would be greatly enhanced in value if the seeds could all be eliminated. Considerable progress has been made in this direction by selecting cuttings from vines which produce grapes with less than the normal number of seeds. Several smaller varieties of seedless grapes have been in existence for many years, but most of them are inferior in some way to the best raisin grapes raised for market. Seedless fruits will be a success only when, in addition to maturing without seeds, the size and quality of the fruits will be equal or superior to the best varieties in the country. That is the essential reason why the navel orange is the greatest success of modern horticultural."—*Bradstreet's*, June 10.

UKUWELA ESTATE COMPANY, LIMITED.

Registered on April 26th, by Harwood and Stephenson, 31, Lombard-street, E.C., with a capital of £17,000 in £50 shares (378 six per cent. cumulative preference.) Object, to acquire the Ukuwela and Bowatte estates in Ceylon, to adopt an agreement with F G Ambrose, and carry on the business of tea, coffee, and cacao planters, importers, exporters, and merchants. The first directors—to number not less than two nor more than five—are F G Ambrose (chairman and managing director with £250 per annum), H L Anley, W B Anley, and J P B Anley. Qualification, £250. Remuneration, £50 each per annum Registered office: 165, Fenchurch-street, E.C.—*Financial News*, May 3.

CINCHONA IN INDIA.

The planters in India are watching suspiciously the new energy of the Government in the direction of cinchona culture, an example of this, which we instanced the other day, being the sending of Mr. Standen to Java to see how things were done there. The Government of Madras purpose extending their cinchona plantations in the Nilghiri Hills to a very large extent, and have already acquired two estates for the purpose. A vote for the extension of cinchona culture was ncluded in the last estimates. Some of the planting papers are indignant at what they regard as an attempt to acquire a Government monopoly of cinchona planting in the Nilgiris.—*British and Colonial Druggist*, June 23.

AMSTERDAM BARK MARKET.

June 15.

The detailed particulars of the Amsterdam bark auction of last week are as follows:—About 20 tons (20,623 kilos) of *Manufacturers'* bark were actually sold in the auction, and about 1½ ton (1,748 kilos) of *Druggists'* bark. There were brought in about 1½ ton of the former, and about 1 cwt. of the latter. So that nearly the whole amount offered was sold. The tone of the auction was quiet: the unit selling price worked out at 8·25 cents per half kilo. (1½ per lb.), against 8·5 cents at the last auction, a decline of over three per cent. Of the bark put up, 73,382 kilos, were succirubra, 369,720 were Ledgeriana, 38,698 were Hybrid and other kinds, and of all these 49,956 kilos were root bark.—*British and Colonial Druggist*, June 19.

MINOR PRODUCTS REPORT.

Areca Nuts.—Offered 25 bags. Sold 0. Good quality was bought in at 30s.

Citronella Oil.—Steady and quiet at last week's price, the spot value of drums being 11¼d, and that of tins 1s to 1s 0¼d. For 3 cakes of fair quality put up at today's auctions without reserve, no bid was obtained.

Kola Nuts.—Offered 36 packages. Sold one. A bag of fair dried nuts was sold at 2½d, all the rest being bought in.

Lemon Oil.—Slightly better this week. One brand, indeed has been advanced 6d in price, 3s 8d c.i.f. being asked when 3s 2d would have been taken yesterday.—*B. & C. Druggist*, June 23.

Annatto Seeds.—Business was done in ordinary vermillion colour at 1d to 1½d per lb. The Jamaica crop has been over for some time, and the demand there is poor.—*Chemist and Druggist*, June 24.

DIRT IN TEA.

COMMERCIAL INTELLIGENCE.

Our special correspondent's revelations concerning the adulteration of tea and the rules for its examination by the Custom House have provoked the greatest interest, not only in the trade, but throughout the country. Last week, in the House, Sir F. Flannery asked the Chancellor of the Exchequer if his attention had been called to a statement in the Press that a quarter of the caper teas and half of the dust teas now imported should be confiscated under the Food and Drugs Act of 1875, by reason of their containing 20 per cent of earthy matter and sand; whether we would explain the nature of the precautions taken by the Customs Department in London for the detection of such adulteration, and whether the number of samples analysed could be increased with advantage; and whether, having regard to the fact that the descriptions of tea above named were for the most part consumed by the humbler classes least able to protect themselves against adulteration, he would increase the staff of inspectors especially allocated to the duties of sampling and analysis of caper and dust teas.

The Chancellor of the Exchequer: My attention has been called to the matter. The Board of Customs have, in view of representations made to them by certain firms and of statements in the Press, ordered a full inquiry to be made. It is not easy, within the limits of an answer to a question, to explain the precautions taken by the Board for the detection of the adulteration of tea; but I shall be happy, if the hon. member wishes it, to supply him with particulars. The Board of Customs, as at present advised, do not consider that there is any need for altering the existing regulations, but if, as a result of the investigation now

in progress, it should appear advisable to make such alterations or to increase the number of tea inspectors, the necessary steps will be taken at once.

On the following evening, Mr. Carew returned to the attack. He asked the Financial Secretary to the Treasury whether he was aware that large importations of tea rejected by the Hamburg and New York Customs had recently been passed by the English Customs and sold in London, though containing up to 20 per cent. of clay and sand, and was unfit for human consumption; and whether, in view of the fact that the price of common teas had advanced 50 per cent., of which the poor were the largest consumers, the Government would insist on a more rigid inspection of all future importations to prevent a repetition of the fraud.

Mr. Hanbury replied that the "Board of Customs have no means of testing the accuracy of the statement in the first paragraph. A full inquiry is being made and if it should appear advisable to alter the existing regulations, or to increase the number of tea inspectors, the necessary steps will be taken at once. Meantime, a circular has been issued to the tea inspectors, directing them to administer the existing regulations with special care."

We are glad that our revelations have had such immediate and far-reaching results, and as inquiry can only reveal the truth of every word of our indictment, we shall look to it that the Government is held to its pledge of reform.—*Public Opinion*, June 23.

PRODUCE AND PLANTING.

No Change.—The latest report of the Commissioner of Customs for Shanghai does not confirm the reports circulated freely some time back that the Chinese were about to reform their methods of tea manufacture. The hopes expressed that the mandarins were at last awakening to the advantage of preparing tea by machinery, we are told, have been disappointed. There has been no improvement, says the report for 1898, in the treatment of tea, "nor is there likely to be as long as Russia takes nearly all the crop of black as it is."

The Sorrows of the Tea Retailer.—The "Grocer" reproves those who foster the demand for cheap tea. It says "Consumers of tea are willing to pay a fair price for a good article, and it may be hoped those retailers who are fostering the demand for 'the shilling canister,' and who are by so doing throwing away another chance of making a legitimate living profit, will curb their zeal and philanthropy. Generally speaking, profit on sugar is almost an unknown quantity; at any rate, retailers do not get a fair return for the labour and capital involved in its distribution. It will be a great misfortune if the tea trade is allowed to drift in a similar direction, and an effort to check the diminution in the margin of profit ought to be made before it is too late. Would the retail distributor's determination to secure a fair return on all his tea sales limit the demand? We think not." Touching lightly upon the sorrows of the retailer, the "Grocer" adds: "The tea trade has been the subject of a great deal of attention during the last few weeks. In several of the general newspapers statements have recently appeared to the effect that a quantity of tea containing an appreciable percentage of 'dirt' has found its way to Mincing Lane, and sensation-mongers have been urging consumers 'to be on their guard against retailers who desire to charge them for tea and to foist upon them an inferior article containing substances not grown upon the tea plant.' It is a pity that such writers do not make inquiries of the Commissioners of Customs before perpetrating such libels on a trade which is generally conducted on as pure a basis as any that could be mentioned. Following upon this damaging statement came the assertion in the prosecution of Lipton, Limited, last week that it is 'the universal custom of the trade to weigh tea with the paper in which it is wrapped.' We publish this week another batch of protests against the assertion, but it is to be feared that among the readers of some of the daily newspapers which did not give sufficient prominence to the contradictions of the statement quoted above, distruct of retail tea-dealers will be created."

Tea and Coffee in America.—They are trying tea as a rival to beer in New York. Tea saloons have been opened where it is sold for a penny a pint, and the buyer may have it hot or cold. Colonel Hadley, the inaugurator of the movement, is going to try and convince the poorer class of consumers that: "Tea builds up; alcohol burns up. Tea quenches thirst; beer starts a thirst." The plan also includes a scheme to induce the beer-drinker to substitute tea and place the daily saving in a bank. To encourage this the society start the account with a gift of 4s, with the understanding that the money formerly spent for been less that spent for tea, shall be deposited daily. The would mean a saving, where a pint of tea is taken instead of a pint of beer, of £17 12, to which the society will add the balance to bring the year's saving up to £20. Coffee finds a more ready sale than tea in some quarters, because the former can be purchased at 4½d to 5d per pound, with a coupon for a gift in each package. This makes one gallon of coffee cost 2½d, while one gallon of tea of a poor sort costs 4d.

A New Use for Tea.—A correspondent who writes to a contemporary on the subject of fortune-telling "in the name of common-sense of society, and of religion," states that fees are now being extorted for the revelation of future events by the medinm of tea leaves. He tells us that a professional lady attends at private houses, bringing her own tea pot, and dares "to predict the future by the position of the tea-leaves when poured with due solemnity into a cup." These fortune-tellers have no preference for Indian and Ceylon tea unfortunately, and can perform their cabalistic mysteries with either high or low grade teas.

Rubber in Togoland.—In Togoland, (a German colony in West Africa between the British gold coast possessions and Dahomey) regulations have been issued to prevent the wanton destruction of india rubber trees, and the dealers receive licenses from the Government. Only natives are allowed to collect this product, strangers being forbidden to ply the trade without a special license, which costs £50 a year. —*H. and C. Mail*, June 30.

PLANTING NOTES.

Durian Plants.—Three plants were raised from seed received from Peradeniya Garden. They are now about eight inches high and are making a promising growth and will be planted out on the first favourable opportunity. These may succeed where the imported plants have hitherto failed.—*Madras Agri-Horticultural Society's Proceedings.*

Another Market for our Teas.—A correspondent writes:—We note that a large exodus of Moormen from Holy Utah is taking place, the much married saints leaving for Manitoba and north-west Canada generally. Here we have another market for our teas, if travellers were sent to tap it via Vancouver. With half-a-dozen dames of one "harem" sitting in solemn conclave to pick to pieces the characters of their dearest friends, the spouses of a neighbouring elder, the consumption of the cup that cheers, which is inseparable from the proverbial scandal on such occasions, ought to be considerable.—*The Planter.*

A RUBBER COAGULATING MACHINE.—It is learned from Messrs. Thomas Christy & Co. (25, Lime street, London, E.C.), that they have sold "a rubber coagulating machine which has given every satisfaction, and turns out a very fine class of rubber, quite free from dirt and foreign matter. One of its great advantages is that the rubber can be coagulated without the admixture of chemicals, except in certain circumstances, and can be got ready for export free from water and moisture, saving a great deal in freight and labor." It is understood that a circular describing this machine will be printed soon, and that it is not built on the Biffen centrifugal system.—*India Rubber World.*

COFFEE SHADE.—Read the following letter from Mr. J W Minchin, Honorary Secretary, Nilgiri Agri-Horticultural Society, Ootcamund, dated 7th February, 1899:—"Mr Rhodes James, of Coonoor, writes me that he wishes to obtain more seed of the Pithecolobium polyciphalum, which, he says, promises to be a very valuable shade tree for coffee. He reports that one tree from the seed, received through me from your Society in 1897, has grown well and is apparently a faster grower than even the Albizzia moluccana. Can you assist Mr. Rhodes James of this Society in getting any more of this seed". The seed asked for will be procured and supplied.—*Madras Agri-Horticultural Society's Proceedings.*

CAMPHOR PLANTS.—Of the twenty-four plants received from the Royal Botanic Gardens, Calcutta, twenty-two plants have been distributed to members and others. Those planted out in our gardens two years ago are now two to three feet high. Mr. Winterbotham, of Meppadi, Wynaad, reports that the two plants we sent him in October 1896 are doing remarkably well; 4 feet high Mr. S M Pritchard, of Yercaud, in his letter of the 18th March, says that the one plant sent to him in August, 1898, made little progress till a month ago, when it began to make a vigorous growth. The elevation of Yercaud is not quite 4,000 feet; soil a virgin black, and the temperature never goes above 89" in the hot and the rainfall averages fifty inches.—*Madras Agri-Horticultural Society's Proceedings.*

BLACK PEPPER: A PROFITABLE CROP.—The cultivation of black pepper in Wynaad is being largely increased, the crops harvested last season being the heaviest ever known in this taluq, while the price realised touched R600 per ton, the local quotations having been R180 per candy of 680 lb. This year the vines appear to be yielding even more largely, and 18 inch long cuttings of the best variety known as "Barlancottan" for transplanting purposes are selling at R5 per mile. Pepper in Wynaad is not usually grown from seed; cuttings being almost exclusively used; these are planted in pits about 15 inches in depth at the base of the tree or standard up which they are to be trained. Where natural standards are not available, stakes of the *Erythrina Indica,* or thorny *Indica,* are laid down, as this variety of indigenous tree appears to be most in favour for this particular purpose, as it strikes root readily, and, being deciduous for several months in the year, it gives a light shade, too much of which is inimical to the vines bearing well. At existing quotations, pepper is undoubtedly *the* most profitable staple to cultivate in Malabar, as after being well started, the gardens require but little labour for cultivation, and "locals" suffice for the purpose.—Ibid.

CHINESE COMPETITION IN TEA.—It will interest exporters of tea in Calcutta to know that, owing to the competition on the Pacific, the new season's China teas are being carried from Yokohama at less than a cent a pound.—*Pioneer.*

A MADAGASCAR RUBBER-TREE.—M Henry Jumelle contributes to the *Comptes Rendus* for May 29th, a paper on the Guidroa, a rubber-tree of Madagascar. The writer mentions that the plant has hitherto been known only under its native name, but that now, thanks to specimens sent from Suberbieville (!) by M Périer de la Bathié, it has been possible to ascertain whether it is a new species, or can be identified with any that is already known. The conclusion arrived at is, that the Guidroa, though clearly belonging to the Mascarenhasia genus, does not exactly resemble either of the fifteen or sixteen known species, but may be held to be a new species, and may be named Mascarenhasia velutina, in allusion to the very characteristic velvety substance of the leaves. M Jumelle describes the manner in which the rubber is gathered from the trees by the Sakalaves. During the dry season, when the milky juice is very thick, they make, he says, numerous incisions in the trunks. The milky juice coagulates almost immediately below the wound, forming small bands of gum which the workers remove after an hour, and which they agglomerate into balls. In this way one man can easily gather a kilogram of the gum in one day. The caoutchouc thus obtained is of good quality, and even, it appears, superior to that gained by ebullition. Thus it seems likely that the Mascarenhasia genus, only found on the east side of Africa and in Madagascar (especially in the north and east), will play a more important part in furnishing caoutchouc plants than has previously been thought likely.—*Gardeners' Chronicle,* June 17th.

CASTILLOA RUBBER TREES on Wiharegama, Matale, have done even better than Major Gordon Reeves recently reported. We now learn on undoubted authority, in a note from Matale, that the trees from which seed is now being gathered and which must be almost nine to ten years old, vary in girth from 40 to 46 inches at three feet from the ground. Of this size there are about 25 trees. Of trees about seven years of age there are some 25 also, average girth 20 to 22 inches; four years old trees about 45, approximate girth 12 inches. Of trees two to three years about 90 trees of varying girth, eight to twelve inches, besides, of course, a large number of younger sapling plants. Most of these larger trees have been planted along with or under cacao and Liberian coffee; and the manager sees no reason whatever to abandon the system. In regard to planting Castilloa rubber as shade for cacao, we find on reference to the *T. A.* of 2nd July, 1894, (Columbia) reports on cultivation of cacao, banana and indiarubber, in districts surroundings Sierra Nevada, and Mr. Munton followed the practice there established. The planting of Ceara rubber in cacao is certainly not desirable; the tree absorbs too much moisture and drops its foliage where the cacao has most need for shade. Dr. Morris, when Assistant Director Kew Gardens, we see by a footnote to this report, stated that the yield of Castilloa trees of ten years should be from four to seven lb. of rubber per annum!

Ceylon Rainfall.

The P. W. D. Meteorological Observations for June 1899.—We append this Monthly Return of rain from which it will be seen that the highest fall was at Padupola in the Central Province, 46·42 inches, and the lowest at Naulla in the Eastern Province 0·10 inch.

Western Province.

Negombo, Mr. Bucknall (6) .. 8·24
Kalutara Mr Gregson (36) 10·76
Labugama, Mr. Bond (369) ... 21·64
Henaratgoda, Mr. Silva (33) ... 14·13

Central Province.

Katugastota, Mr. Morgan (1,500) .. 7·41
New Valley, (Dikoya) Mr. Ward (3,708) .. 23·16
Helboda, (Pussellawa) Not received (3,300) ... —
Yarrow Estate, Mr. Peto (3,400)... 15·71
Peradeniya Mr. MacMillan (1,540) ... 10·74
Duckwari, Mr. Adwin (3,300) ... 12·45
Caledonia, Mr Goork .. (4,273) ... 16·75
Pussellawa, Mr. Powell (3,000) 18 38
Hakgala, Mr. Nock (5,581) .. 7·48
S. Wanarajah Estate, Mr. Tatham (3,700) ... 29 21
St. Andrew's (Maskeliya,) Not received (4,200)... —
Padupola, Mr. Ward ... (1,636) 46 42
Mylapitiya, Mr. Fletcher (1,707) ... 1 90

Northern Province.

Mullaittivu, Mr. Sanmukam (12) . Nil
Jaffna Mr MacDonnell (8) Nil
Mankulam, (N. Road) Mr. Sanmukam (167) .. Nil
Elephant Pass, Mr. Silva (7) .. Nil
Vangalachettykulam, Mr. Herft (179) ... Nil
Point Pedro, Mr. Paravachasinghe (24) .. Nil
Jaffna College, Mr. Cooke (9) ... Nil
Kayts, Mr. Kretser (8) .. Nil
Kankesanturai, Mr. Adams (10) . Nil
Pallai, Mr. Silva (24) .. Nil
Murlkandy, (North-Central Road) Mr. Silva — Nil
Nedunkeni, Mr. Sanmukam (122) ... Nil
Chavakachcheri, Mr. Silva (16) ... Nil
Udupiddi, Mr. Hastings (35) .. Nil
Marichchukaddi, (14) Mr. Thamotharampillay —
Murungan, Mr. Blechingberg — Nil
Vavuniya Mr. Sanmukam (318) Nil

Southern Province.

Ella Vella (262) Mr. Smith 10·83
Kekanadura, (150) do 13·79
Denagama, (286) do 10·01
Udukiriwila Mr. Lourensz (235) ... 6·60
Kirama, Mr. Ismail (260) 16·77
Hali-ela (200) Mr. Smith 10·60
Tissamaharama, Not received (75) ... —
Matara (15) Mr. Smith 7·30
Dandeniya, (157) do 6·91
Urubokka, (890) do 17·18
Elagala, Not received (121) —
Tangalla, (94) Not received
Mamadola, Mr. Cade — (56) ... 6·01

Eastern Province.

Irrakkamam, (42) Not received —
Devilana, Mr. Vanderstraaten (136) Nil
Sagamata, Not received (40) ... —
Ambare, do (65) —
Kanthalai, Mr. Carte (50) Nil
Allai, Mr. Carte (95) Nil
Rukam, Mr. Vanderstraaten (120) .. Nil
Periyakulam, Mr. Carte (20) ... Nil
Chadaiyantalawa, Mr. Edge (57) ... 0·67
Kalmunai, do (12) 0·74
Rotewewa, do (30) Nil
Lahugala, do (70) Nil
Naulla, do (30) 0·10
Andankulam, Mr. Carte (41) ... Nil
Manalpuddy, Mr. Vanderstraaten (21) 0·40
Maha-Oya-Tank, Mr. Vanderstraaten (190) Nil

N.-W. Province.

Magalawewa, Mr. Gunaratna (176) .. 1·90
Maha Uswewa tank, Mr. Crabb (160) ... 0·85
Tenepitiya, Mr. Simmons (8) ... 13·43
Batalagoda, Mr. Madahapola — 7·04

N.-C. Province.

Kalawewa, (268) Mr. Carson Nil
Maradankadawala, Mr. Carson (443) ... 0·29
Mihintale, Mr MacBride (354) ... Nil
Horowapotana, Mr. MacBride (217) ... Nil
Madawachchiya, Mr. MacBride (285) ... Nil
Topare, (200) Mr. Jayawardane ... Nil
Minneriya — Mr. Eves Nil

Uva Province.

Bandarawela, Mr. Tocke (4,380) ... 1·35
Haldummulla, Mr. Viramuttu (3,160) ... Nil
Kumbukan, (446) Mr. Emerson ... 0·57
Koslanda, (2,258) Mr. Emerson ... Nil
Tanamalwila, Not received (550) ... —

Sabaraoamuwa.

Ambanpitiya, Mr. Caldicott (729) 16·67
Pelmadulla, Mr. Clarke (408) 43·49
Kolonna Korale (Hulandaoya) (203) Not Received —
Avissawella, Mr. Jeffery (105) 21 5

CHINA TEA PROSPECTS.

The Hongkong *Daily Press* of 4th July has the following interesting deliverance:—

Experts in tea are agreed that the *desiderata* to retrieve the fortunes of the China tea trade are improved cultivation and manipulation, and a reduction in the cost of production. "So long, however," says Mr. Hughes in his Kiukiang Customs report, "as the present heavy taxation exists in China all along the route from the place of origin to the point of shipment—a taxation amounting to about 25 per cent. of the cost, whilst the tea of other countries (India, Ceylon, etc.) are free of duty, neither the improvement of the leaf nor the reduction of the original cost can be reckoned as prime factors in the question. The wonder is that an article so heavily handicapped as China tea is, in the matter of duty and taxes, should still hold a respectable place in the world's markets and still retain such a large share of foreign patronage. It would almost seem as if, even without any other alteration in the present state of affairs, China tea, with a wise removal of, say, half its fiscal burdens, could hold its own with its modern rivals, to the immense benefit of the Chinese Government and people." The 25 per cent. mentioned by Mr. Hughes as the amount of taxation to which Kiukiang tea is subjected is somewhat less than the amount given by competent authorities at other ports. Mr. Brenan, in the Canton Consular report for 1897, placed the figure at 35 per cent., while Mr. Cass, of Amoy, in a review of the tea trade supplied by him to the Consul and incorporated in the 1896 reported, said the reason for the decline was not far to seek: the entire crop realised $136,000, while the lekin paid amounted to $20,000 and the export duty to $35,000, or a total of $55,000, considerably more than one-third of the value of the tea. The result is that at Amoy the tea trade has practically ceased to exist.

The latest market report in the same paper is of interest:—

Shanghai, 3rd July.—(From Messrs. Welch Lewis & Co.'s Circular.)—Our last "printed" tea market advices were under date 16th instant. From Hankow we hear of an active demand from Russian houses for second crop Black Teas from the Liang Hu districts at prices which make early purchases of first crop Teas look cheap.

Green Tea.—It is perhaps a matter for congratulation to find that the fear of rejection by the United States Customs Inspectors is no longer oppressing the dealings in good sound common Teas, and it is hardly to be wondered at that the craving for common Teas, in most of the consuming centres should cause inflated prices here. Fine Teas are comparatively neglected, but lines which were going a begging last year at Tls. 12/14 are now eagerly taken at Tls. 20/21, and the lowest quotation for "skin" is Taels 14 a picul. We must not forget to say that there is no suspicion of adulteration about these Teas, and they are all sweet drawing. At the same time if these prices continue the supply of common Tea will be largely increased.

From the table of exports we see that the comparison in the case of shipments to the United Kingdom is as follows:—

			Black.	Green.
			lb.	lb.
Total to date,	1899	...	8,380,059	7,064
Do.	1898	...	5,914,986	10,068
Do.	1897	...	7,538,126	20,049

To North America, on the other hand, there is a slight falling-off this season so far, as also in the direct shipments to Russia.

SHARE LIST.

ISSUED BY THE

COLOMBO SHARE BROKERS' ASSOCIATION.

CEYLON PRODUCE COMPANIES.

Name of Company.	Amount paid per share.	Buyers.	Sellers
Agra Ouvah Estates Co., Ltd.	500	—	925
Ceylon Tea and Coconut Estates	500	—	500 n'l
Castlereagh Tea Co., Ltd.	100	100	102·50
Ceylon Hills Estates Co., Ltd.	100	—	30
Ceylon Provincial Estates Co.	500	—	485 xd
Claremont Estates Co., Ltd.	100	15	..
Clunes Tea Co., Ltd.	100	102·50	105
Clyde Estates Co., Ltd.	100	—	90
Delgolla Estates Co., Ltd.	400	—	150
Deomoo Tea Co., of Ceylon, Ltd.	100	65*	—
Drayton Estate Co., Ltd.	100	135	—
Ella Tea Co., of Ceylon, Ltd.	100	50	—
Estates Co., of Uva, Ltd.	500	—	350
Gangawatta	500	..	—
Glasgow Estate Co., Ltd.	500	—	975
Great Western Tea Co., of Ceylon, Ltd.	500	640	640*
Hapugahalande Tea Estate Co Ltd	200	250	—
High Forests Estates Co Ltd	500	210*	550
Do part paid	350	...	—
Horekelly Estates Co., Ltd.	100	—	85
Kalutara Co., Ltd.	500	400	—
Kandyan Hills Co Ltd.	100	—	45
Kanapediwatte Ltd.	100	—	90*
Kelani Tea Garden Co., Ltd.	100	...	65
Kirklees Estates Co., Ltd.	100	140	—
Knavesmire Estates Co., Ltd.	100	..	77·50
Maha Uva Estates Co., Ltd	500	—	575
Mocha Tea Co., of Ceylon, Ltd.	500	675	700
Nahavilla Estate Co., Ltd.	500	—	500
Nyassaland Coffee Co. Ltd.	100	..	90
Ottery Estate Co., Ltd.	100	110	—
Palmerston Tea Co., Ltd.	500	..	425
Penrhos Estates Co., Ltd.	100	—	105*
Pine Hill Estate Co., Ltd.	60	—	50
Pitakanda Tea Company	500	1,000	—
Putupaula Tea Co., Ltd.	100	..	100
Ratwatte Cocoa Co., Ltd.	500	350	500 n'l
Rayigam Tea Co., Ltd.	100	55*	...
Roeberry Tea Co., Ltd.	100	55	60
Ruanwella Tea Co., Ltd.	100	...	75
St. Heliers Tea Co., Ltd.	500	505	—
Talgaswela Tea Co., Ltd.	100	—	35
Do 7 per cent. Prefs.	100	80*	..
Tonacombe Estate Co., Ltd.	500	—	450
Udabage Estate Co., Ltd.	100	..	65
Udugama Tea & Timber Co., Ltd.	50	..	10 n l
Union Estate Co., Ltd.	500	—	300
Upper Maskeliya Estate Co., Ltd.	500	..	500
Uvakellie Tea Co., of Ceylon, Ltd.	100	..	65
Vogan Tea Co., Ltd.	100	—	87·50
Wanarajah Tea Co., Ltd.	600	1150	1150*
Yataderiya Tea Co., Ltd.	100	—	400

CEYLON COMMERCIAL COMPANIES

Name of Company.	Amount paid per share.	Buyers.	Sellers
Adam's Peak Hotel Co., Ltd.	100	..	60
Bristol Hotel Co., Ltd.	100	82·50*	..
Do 7 per cent Debts.	100	102·50	—
Ceylon Gen. Steam Navgt. Co., Ltd.	100	200	200*
Colombo Apothecaries Co., Ltd	100	...	130*
Colombo Assembly Rooms Co., Ltd.	20	..	12·50
Do prefs.	20	..	17
Colombo Fort Land and Building Co., Ltd.	100	..	82·50
Colombo Hotels Company	100	—	290
Galle FaceHotel Co., Ltd.	100	150*	150
Kandy Hotels Co., Ltd.	100	87·50*	—
Kandy Stations Hotels Co.	100	..	40
Mount Lavinia Hotels Co., Ltd.	500	..	400
New Colombo Ice Co., Ltd.	100	—	162
Nuwara Eliya Hotels Co., Ltd.	100	—	40
Public Hall Co., Ltd.	20	15	—
Petroleum Storage Co.	100	—	—
Do 10 % prefs.	100	35	40
Wharf and Warehouse Co., Ltd.	40	80	—

* Transactions.

LONDON COMPANIES.

Name of Company.	Amount paid per share.	Buyers.	Sellers.
Alliance Tea Co., of Ceylon, Ltd.	10	8½—9	—
Associated Estates Co., of Ceylon Ltd.	10	..	6½—7
Do. 6 per cent prefs.	10	..	10—10
Ceylon Proprietary Co.	1	..	12·6—15
Ceylon Tea Plantation Co., Ltd.	,	..	26¼—27
Dimbula Valley Co., Ltd.	5	—	6—6¼
Do prefs.	5	—	5½—6 xd
Eastern Produce and Estates Co., Ltd.	5	..	6¼—6¾
Ederapolla Tea Co., Ltd.	10	.	8—9
Imperial Tea Estates Ltd.	10	..	6½
Kelani Valley Tea Asson., Ltd.	5	..	5—6
Kintyre Estates Co, Ltd.	10	.	8½
Lanka Plantation Co., Ltd.	10	4½	..
Nahalma Estates Co., Ltd.	1	.	½—1
Nuwara Eliya Tea Est. Co., Ltd.	10	...	10¼
Ouvah Coffee Co., Ltd.	10	7	—
Ragalla Tea Estates Co., Ltd.	10	...	10½
Scottish Ceylon Tea Co., Ltd.	10	..	15
Spring Valley Tea Co., Ltd	10	..	5—6 n'l
Standard Tea Co., Ltd	10	..	12½—13
Yatiyantota Ceylon Tea Co., Ltd.	10	—	8—8½
Yatiyantota pref. 6 o/o	10	..	9¾—10

BY ORDER OF THE COMMITTEE.

Colombo, 28th July, 1899.

RAINFALL RETURN FOR COLOMBO

(Supplied by the Surveyor-General.)

	1890.	1891.	1892.	1893.	1894.	1895.	1896.	1897	1898	Av. of 29yrs.	1899
	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch	Inch	Inch	Inch.	Inch.
January ..	0·81	1·45	7·39	5·42	0·62	5·00	2·92	3·81	2·32	3·09	6·98
February ..	4·36	2·81	5·32	2·36	0·52	0·81	0·35	1·68	1·98	1·90	2·78
March ..	5·34	9·43	1·52	5·15	7·44	1·84	5·64	3·66	4·21	4·92	0·88
April ..	14·27	5.93	13·92	20·39	12·51	9·34	5·93	10·97	22·81	11·47	6·66
May ..	6·48	17·65	3·00	10·32	3·00	10·09	9·31	8·30	5·80	11·89	17·73
June ..	1·87	9.79	6·62	11·01	11·32	13·99	8·37	10·14	10·94	8·34	9·23
July ..	3·32	4·59	1·10	2·20	1·72	0·52	2·85	5·24	6·15	4·49	1·11*
August ..	0·73	1·65	1·86	1·01	0·86	0·92	6·35	9·09	0·97	3·77	
September	1·50	4·42	1·14	1 99	0·78	4·09	10·99	4·58	6·90	5·13	
October ..	13·33	35·28	12·24	5·59	20·81	30·36	16·78	4·71	20·60	14·57	
November..	12·32	18·37	5·86	18·10	14·63	5·83	19.81	11·66	17·38	12·80	
December..	8·47	7·66	0·86	·13	3·25	9·44	11·76	8·89	3 65	6·45	
Total..	72·80	119·03	60·83	89·67	77·46	92·23	101·06	82·7	103·11	88·82	45·37

* From 1st to 25th July 1·11 inches, that is up to 9·30 a.m., 6th July.—Ed. *C.O.*

COFFEE IN BRAZIL.—It is stated that near Cravinhos, S Paulo, a plantation with 50,000 coffee trees, formerly valued at 181,000$ has been bought by Dr. Alfredo Pujol for 22,000$. The journal from which we take this item estimates the growing crop at 30,900 arrobas ; but this is evidently a mistake, for, although there is no lack of individual instances in which trees bear even more than 20 lb of coffee each, we have never before heard of a whole plantation's averaging a third of that yield per tree.—*Rio News.*

COLOMBO PRICE CURRENT.

(Furnished by the Chamber of Commerce.)

Colombo, July 25th, 1899

EXCHANGE ON LONDON :—Closing Rates: *Bank Selling Rates*:—On demand 1/4; 4 months' sight 1/4 1-32; 6 months' sight 1/4 1-16.

Bank Buying Rates:—Credits 3 months' sight 1/4 ½; 6 months' sight 1/4 11-32; Docts 3 months' sight 1/4 5-16; 6 months' sight 1/4 13-32.

Indian Bank Minimum Rates 4 o/o to 5 %

Local Rates: 2 o/o to 3 o/o Higher.

COFFEE :—

Plantation Estate Parchment on the spot per bus—R13.00

Plantation Estate Coffee, f.o.b on the spot per cwt R75.00

Liberian Parchment on the spot per bus—None

Native Coffee f.o.b per cwt. None

TEA:—Average Prices ruling during the week—Broken Pekoe per lb. 42c. Pekoe per lb. 36c. Pekoe Souchong per lb. 33c. Broken Mixed and Dust per lb. 26c.—Averages of Week's sale.

CINCHONA BARK:—Per unit of Sulphate of Quinine per lb 7c.

CARDAMOMS:—Per lb R1.70

COCONUT OIL:—Mill oil per cwt. None.

Dealers' oil per cwt. R13.75; Coconut oil in ordinary packages f.o.b. per ton R307.50

COPRA:—Per candy of 560 lb. R43.00

COCONUT CAKE:—(Poonac) f.o.b. per ton, R82.50

Cocoa unpicked & undried, per cwt. R45.25

Picked & Dried f. o. b. per cwt. None.

COIR YARN.—Nos. 1 to 8 { Kogalla R17.25 / Colombo R16.00

CINNAMON:—Nos. 1 & 2 only f.o.b. 65c.

Do Ordinary Assortment. per lb 57c.

EBONY.—Per ton R185.00

PLUMBAGO:—Large Lumps per ton, R1,100

Ordinary Lumps per ton, R1,000

Chips per ton, R750 Dust per ton, R600 Dust Flying R150.

RICE.—Soolai per bag, R7.50 to 8.00

„ per bushel, R2.87 to 3.06

Pegu & Calcutta Calunda per bushel. R2.96 to 3.00

Coast Calunda per bushel, R3.00 to R3.05

Mutusamba per bushel R3.37 to 3.80

Kadapa and Kuruwe, per bushel—None.

Rangoon, raw 3 bushel bag. R9.40 to 10.00

Coast Kara per bushel R3.00 to 3.05

Soolai Kara per bushel R2.86 to 2.87

THE LOCAL MARKET.

(By Mr. James Gibson, Baillie St., Fort.)

Colombo, July 25th, 1899.

COFFEE :—

Estate Parchment :—per bushel	R11·00 to 13·00
Chetty do do	R8·00 to 9 00
Native Coffee / do F. O. B } per cwt.	R35·00 to 40·00
Liberian coffee:—per bushel	R3·50
do cleaned coffee:—per cwt	R20·00
Cocoa unpicked:—per cwt	R40·00 to 42·00
do cleaned do	R42·00 to 44·00
Cardamoms Malabar per lb	R1·00 to 1·25
do Mysore do	R1·65 to 1·95
RICE :	
Soolai per bag of 164 lb. nett	R7·50 to 8·00
Slate or 1st quality:—per bushel	R2·98 to 3·06
Soolai 2 & 3rd. do do do	R2·87 to 2·96
Coast Calunda	R3·00 to 3·05
Coast Kara	R3·00 to 3·05
Kazala	R2·86 to 2·87
Muttusamba Ordinary	R3·37 to 3·80
Rangoon Rice per bag	R9·40 to 10·00
Cinnamon. per lb No 1 to 4	R00·57
do do 1 to 2	R00·65
do Chips per candy	R90·00 to 92·50 scarce
Coconuts Ordinary per thousand	R35·50 to 38·00
do Selected do	R36·00 to 39·00
Coconut Oil per cwt	R13·75 to 13·87½
do do F. O. B. pe to	R275·00 to 277·50
POONAC :—	
Gingelly per ton	R85·00 to 87·50
Coconut Chekku do	R77·50 to 82·50
do Mill (retail) do	R80·00 to 82·50
Cotton Seed do	R60·00 to 65·00
POONAC: -	
Copra per candy	
Kalpitiya do	R44·50
Marawila do	R42·00 to 43·50
Cart Copra do	R40·00 to 41·00
Satinwood per cubic feet.	R2·00 to 2·25
do Flowered do	R5·00 to 6·00
Halmilla do	R1·90
Palu do	R1·00 to 1·12
Ebony per ton	R75·00 to 175·00
Kitul fibre per cwt	R30·00
Palmyra do do	R8·00 to 17·50
Jaffna Black Clean per cwt	R13·50 to 14·00
do mixed do	R11·50 to 12·50
Indian do	R8·00 to 13·50
do Cleaned do	R10·00 to 17·50
Sapanwood per ton	R45·00 to 52·50
Kerosine oil American per case	R6·00 to 6·25
do bulk Russian per tin	R2·75 to 2·90
Nux Vomica per cwt	R2·00 to 3·50
Croton Seed per cwt	R38·00 to 40·00
Kapok cleaned f o b do cwt	R24·00 to 24·50
do uncleaned do	R7·50 to 8·00
Plumbago per ton, according to grade — Large lumps	R600·00 to 1,050·00
do	R500·00 to 975·00
Chips	R300·00 to 750·00
Dust	R275·00 to 550.00

CEYLON EXPORTS AND DISTRIBUTION. 1899.

COUNTRIES.	Tea, 1899 lbs.	Tea, 1898 lbs.	Coffee—cwt. Plantation	Coffee—cwt. N'tive	Coffee—cwt. Total.	Cinchona Branch & Trunk lb. 1899, lbs.	Cinchona Branch & Trunk lb. 1898. lbs.	Cocoa cwts.	C'moms lbs.	Cinnamon. Bales lbs.	Cinnamon. Chips. lbs.	Coconut Oil. 1899 cwts.	Coconut Oil. 1898 cwts.
To U. K.	58469644	58180543	7017	..	7017	372703	398838	27842	217501	321085	444349	52534	54358
„ Austria	6816	11372	1	..	1	..	..	...	...	..	105926	1855	5327
„ Belgium	8883	8340	61	..	61	..	..	131	58	47260	95760	606	903
„ France	62351	50289	165	...	165	33	21808	3	...	42066	1750	..	4008
„ Germany	226748	194533	19	..	19	..	..	..	20490	197621	349096	401	6568
„ Holland	8270	6846	..	..	..	...	..	..	..	..	..	...	..
„ Italy	8716	2970	..	..	..	..	..	...	20	48300	100320	205	...
„ Russia	1958690	1251319	24	..	24	..	..	...	...	...	...	..	..
„ Spain	11300	24150	..	...	..	..	...	...	...	128400	18200	..	..
„ Sweden	29746	22584	..	..	..	..	..	...	4036	500	..	206	..
„ Turkey	10202	17144	1	..	1	..	...	..	...	...	..	..	..
„ India	271721	654339	68	..	68	..	..	1	31164	...		25754	63777
„ Australia	8219745	8657459	2054	..	2054	..	...	81	..	4900	15120	373	422
„ America	1443630	1213971	331	..	331	94005	147559	472	4977	60600	28000	56442	24711
„ Africa	173310	217256	...	..	..	..	724	..	616	400	1240	..	..
„ China	736711	694762	28	...	28	...	2026	...	2388	35000	...	2880	2222
„ Singapore	35087	32554	77	..	77	..	-	..	480	..	..	22333	61844
„ Mauritius	33415	7300	..	..	..	..	..	..	...	...	..	..	..
„ Malta	133487	116229	..	...	..	...	..	..	..	..	..	..	...
Total export from 1st Jan. to 25th July, 1899	71848472	71357960	9846	..	9846	466741	570955	28530	281730	886182	1159761	166589	224140

MARKET RATES FOR OLD AND NEW PRODUCTS.

(From Lewis & Peat's Fortnightly Prices Current, London, July 12th, 1899.)

	QUALITY.	QUOTATIONS.
ALOES, Soccotrine cwt.	Fair to fine dry ...	44s a 100s
Zanzibar & Hepatic ,,	Common to good ...	11s a 80s
BEES' WAX, ,,		
Zanzibar & Bombay White ,,	Good to fine	£7 a £7 10s
Yellow ,,	Fair ,,	£5 15s a £6 10s
Madagascar ,,	Dark to good palish	£6 a £6 12s 6d
CAMPHOR, China ,,	Fair average quality	125s
Japan ,,	,, ,, ,,	127s 6d
CARDAMOMS, Malabar lb	Clipped, bold, bright, fine	2s 6d a 2s 9d
	Middling, stalky & lean	1s 7d a 2s
Ceylon.—Mysore ,,	Fair to fine plump ..	3s 8d a 4s
	Seeds ..	2s 2d a 2s 5d
,, Tellicherry ,,	Good to fine ..	2s 11d a 3s
	Brownish ..	2s 6d
,, Long ,,	Shelly to good ..	2s 6d a 3s 6d
,, Mangalore ,,	Med brown to good bold	2s 3d a 3s 3d
CASTOR OIL, Calcutta ,,	1sts and 2nds ..	3¼d a 4d
Madras ,,	..	3½d a 3¾d
CHILLIES, Zanzibar cwt.	Dull to fine bright ...	29s 6d a 40s
CINCHONA BARK.—		
Ceylon lb.	Crown, Renewed	5d a 7d
	Org. Stem	8¾d
	Red Org. Stem	2¾d a 4⅜d
	Renewed	3⅜d
	Root	3¼d
CINNAMON, Ceylon 1sts	Ordinary to fine quill	10d a 1s 6d
per lb. 2nds	,, ,,	9½d a 1s 5d
3rds	,, ,,	9d a 1s 4d
4ths	,, ,,	7½d a 11½d
Chips	,, ,,	2d a 8½d
CLOVES, Penang lb.	Dull to fine bright bold	4¼d a 1s
Amboyna ..	Dull to fine	4d a 5¼d
Zanzibar and Pemba	Good and fine bright	3¼d a 4¼d
	Common dull to fair	3d a 3 3-16d
Stems ..	Fair	2d
COCCULUS INDICUS cwt.	Fair	9s
COFFEE		
Ceylon Plantation ,,	Bold to fine bold colory	104s a 120s
	Middling to fine mid ..	93s a 102s
	Low mid. and low grown	81s a 92s 6d
	Smalls	35s a 75s
Native ,,	Good ordinary	30s a 70s
Liberian ,,	Small to bold	26s a 37s
COCOA, Ceylon ,,	Bold to fine bold	72s a 85s
	Medium and fair	62s a 70s
	Triage to ordinary	42s a 6d 62s 6d
COLOMBO ROOT ,,	Ordinary to good	12s a 21s
COIR ROPE, Ceylon ton		nominal
Cochin ,,	Ordinary to fair ..	£14 a £23
FIBRE, Brush ,,	Ord. to fine long straight	£10 a £21
Cochin ,,	Ordinary to good clean	£18 a £22
Stuffing ,,	Common to fine	£7 a £9
COIR YARN, Ceylon ,,	Common to superior	£15 a £33
Cochin ,,	,, ,, very fine	£12 a £32
do. ,,	Roping, fair to good	£10 a £14 10s
CROTON SEEDS, sift. cwt.	Dull to fair	40s a 55s
CUTCH ,, ,,	Fair to fine dry	28s a 35s
GINGER, Bengal, rough ,,	Fair	21s
Calicut, Cut A ,,	Good to fine bold	69s 6d a 75s
B & C ,,	Small and medium	27s 6d a 49s 6d
Cochin Rough ,,	Common to fine bold	22s a 26s
	Small and D's	17s a 20s
Japan ,,	Unsplit	19s a 20s
GUM AMMONIACUM ,,	Sm. blocky to fine clean	20s a 45s
ANIMI, Zanzibar ,,	Picked fine pale in sorts	£10 7s 6d a £15
	Part yellow and mixed	£8 2/6 a £10 10s
	Bean and Pea size ditto	70s a £8 15/
	Amber and dk. red bold	£5 10s a £7 10s
	Med. & bold glassy sorts	80s a 100s
Madagascar ,,	Fair to good palish ...	£4 8s a £8
	,, ,, red ...	£4 5s a £9
ARABIC E. I. & Aden ,,	Ordinary to good pale	40s a 55s
Turkey sorts ,,		70s a 85s
Ghatti ,,	Pickings to fine pale ...	12s 6d a 35s
Kurrachee ,,	Good and fine pale ...	52s 6d a 55s
	Reddish to pale selected	30s a 40s
Madras ,,	Dark to fine pale ...	27s 6d a 35s
ASSAFŒTIDA ,,	Clean fr. to gd. almonds	40s a 95s
	Ord. stony and blocky	24s a 47s 6d
KINO ,,	Fine bright	4s
MYRRH, picked ,,	Fair to fine pale	65s a 75s
Aden sorts ,,	Middling to good	33s a 55s
OLIBANUM, drop ,,	Good to fine white	36s a 50s
	Middling to fair	25s a 35s
pickings ,,	Low to good pale	17s a 20s
siftings ,,	Slightly foul to fine	16s 6d a 18s
INDIARUBBER, Assam lb	Good to fine	2s 10½d a 3s 1d
	Common to foul & mxd.	1s 4d a 2s 6d
Rangoon	Fair to good clean ...	2s 9d a 3s 2d
	Common to fine	1s a 2s 4d

	QUALITY	QUOTATIONS.
INDIARUBBER, (Contd).		
Java, Sing. & Penang lb.	Foul to good clean ..	8d a 3s
Mozambique ,,	Good to fine Ball ...	2s 8d a 3s 6d
	Ordinary to fair Ball..	2s a 2s 10d
	Low sandy Ball ..	1s 3d a 1s 6d
	Sausage, fair to good..	3s 2d a 3s 6d
	Liver and livery Ball .	2s 4d a 3s
Madagascar ,,	Fr. to fine pinky & whi..	3s a 3s 4d
	Fair to good black ..	2s a 2s 3d
	Niggers, low to fine ..	1s a 2s 6d
INDIGO, E.I. ,,	Bengal--	
	Shipping mid to gd violet	2s 10d a 4s
	Consuming mid. to gd.	2s 6d a 2s 9d
	Ordinary to mid.	2s 2d a 2s 5d
	Mid. to good Kurpah	1s 11d a 2s 5d
	Low to ordinary	1s 8d a 1s 10d
	Mid. to good Madras	1s 4d a 2s 2d
MACE, Bombay & Penang per lb.	Pale reddish to fine	2s a 3s
	Ordinary to fair	1s 5d a 1s 11d
	Pickings	1s 1d a 1s 3d
MYRABOLANES, Madras cwt	Dark to fine pale UG	5s a 6s
	Fair Coast	4s 6d a 5s
Bombay ,,	Jubblepore	4s 3d a 6s 6d
	Bhimlies	4s 9d a 9s 6d
	Rhajpore, &c.	4s 3d a 8s
Bengal ,,	Calcutta	4s 6d a 6s
NUTMEGS— lb.	64's to 57's	2s 4d a 2s 6d
Bombay & Penang ,,	110's to 65's	1s 1d a 2s 3d
	160's to 130's	6d a 11d
NUTS, ARECA cwt.	Ordinary to fair fresh	12s a 18s
NUX VOMICA, Bombay per cwt.	Ordinary to middling	4s a 5s 6d
Madras	Fair to good bold fresh	7s a 10s
	Small ordinary and fair	5s 6d
OIL OF ANISEED lb	Fair merchantable	5s 9d
CASSIA ,,	According to analysis	3s 11d a 5s 6d
LEMONGRASS ,,	Good flavour & colour	2⅝d a 2⅞d
NUTMEG ,,	Dingy to white	3d a 3½d
CINNAMON ,,	Ordinary to fair sweet	3½d a 1s 6d
CITRONELLE ,,	Bright & good flavour	11d a 1s 10½d
ORCHELLA WEED—cwt		
Ceylon ,,	Mid. to fine not woody ..	10s a 12s 6d
Zanzibar. ,,	Picked clean flat leaf ...	10s a 16s
	,, wiry Mozambique	10s a 11s
PEPPER (Black) lb.		
Alleppee & Tellicherry	Fair to bold heavy ...	5⅛d a 5¼d
Singapore	Fair	5¼d
Acheen & W. C. Penang	Dull to fine	4½d a 5d
PLUMBAGO, lump cwt.	Fair to fine bright bold	36s a 47s
	Middling to good small	18s a 25s
chips ,,	Dull to fine bright ..	20s a 27s 6d
dust ,,	Ordinary to fine bright	13s 6d a 22s 6d
SAFFLOWER ,,	Good to fine pinky ..	80s a 85s
	Middling to fair ...	60s a 70s
	Inferior and pickings	50s a 55s
SANDAL WOOD—		
Bombay, Logs ton.	Fair to fine flavour ..	£20 a £35
Chips ,,	.. ..	5s a £8
Madras, Logs ,,	Fair to good flavour ..	£20 a £50
Chips ,,	Inferior to fine ...	£4 a £8
SAPANWOOD Bombay ,,	Lean to good ..	£4 a £5
Madras ,,	Good average ..	£4 a £5 nom
Manila ,,	Rough & rooty to good	£4 10s a £5 15s
Siam ,,	bold smooth ..	£6 a £7
SEEDLAC cwt.	Ord. dusty to gd. soluble	55s a 60s
SENNA, Tinnevelly lb	Good to fine bold green	4¼d a 6½d
	Fair middling medium	3d a 3½d
	Common dark and small	2d a 2½d
SHELLS, M. o'PEARL— Bombay cwt.	Bold and A's; D's and B's; Small ...	£4 a £5 15s
Mussel ,,	Small to bold ...	£1 5s a £3 2/6
TAMARINDS, Calcutta...	Mid. to fine bl'k not stony	15s a 16s
per cwt. Madras	Stony and inferior ..	7s 6d a 8s 6d
TORTOISESHELL—		
Zanzibar & Bombay lb.	Small to bold dark mottle part heavy	18s a 23s 6d
TURMERIC, Bengal cwt.	Fair ...	18s
Madras ,,	Finger fair to fine bold bright	27s 6d
Do. ,,	Bulbs ..	17s
Cochin ,,	Finger ..	17s a 17s 6d
	Bulbs ...	9s a 9s 6d
VANILLOES— lb.		
Mauritius and Bourbon 1sts	Gd. crysallized 3½ a 9 in	20s a 32s
2nds	Foxy & reddish 4½ a 8 ,,	21s a 28s 6d
Seychelles 3rds	Lean and inferior ...	10s a 14s
VERMILION lb.	Fine, pure, bright ...	2s 3d a 2s 5d
WAX, Japan, squares cwt	Good white hard ...	30s 6d a 31s

THE
AGRICULTURAL MAGAZINE,
COLOMBO.

Added as a Supplement Monthly to the "TROPICAL AGRICULTURIST."

The following pages include the Contents of the *Agricultural Magazine* for August:—

Vol. XI.] AUGUST, 1899. [No. 2.

THE ANNATTO DYE OF COMMERCE.
(Continued.)

THE use of annatto for colouring cheese and other food articles seems to have originated from the belief that it possessed certain antiseptic and peptic properties, but the country of its origin is not known. The West Indians were known to be using it as a medicine in the treatment for dysentery, while in East India, Mysore, the natives use it as a condiment in their curries. The Spanish mix the prepared dye in their chocolates—evidently not for the sake of the colouring but for its virtue as a digestive. The superiority of cheese made in Holland is no doubt due to a judicious use of the dye which it seems the Dutch keep as a secret. Manufacturers in Germany in attempting to imitate the Dutch product, overdid it so much so, that it was found necessary for the German government to enact special laws last year prohibiting the use of annatto in that country. In an extract from the *Journal of the Society of Arts* which appeared in the *Ceylon Observer of* 12th instant, it will be seen that annatto which is therein named "bixa orellana" formed one of the principal products of Togoland in German West Africa. After the new laws came into operation in the fatherland, the produce of those colonies evidently found its way to other countries, carrying with it the tendency of lowering prices and demoralizing the market. But this state of things should not continue long, for as soon as it is known that the variety of the annatto growing in Africa is different from those found in East India and Ceylon, preference will be given once more to the latter as has actually been the case once before when the West Indian product reigned supreme. In this connection it will be interesting to look back to the discussion which a sample of West African annatto seed sent to England had elicited. The following letter which appeared in the *Kew Bulletin* for July, 1890, speaks for itself:—

ROYAL GARDENS, KEW, TO COLONIAL OFFICE.

Royal Gardens, Kew, 29th March, 1890.

Sir,—I am desired by Mr. Thiselton Dyer to acknowledge the receipt of your letter of 22nd January last, forwarding a copy of a despatch from the Officer Administrating the Government of Lagos on the subject of an experimental consignment of annatto seeds forwarded to this country for valuation and report.

2. These seeds were duly received at Kew early last month, and samples were forwarded to several firms of annatto dealers and manufacturers inviting their opinion upon them for the information of the Government of Lagos.

3. Copies of the replies received are herewith enclosed. It appears that Lagos annatto seeds are not so good as those exported from Jamaica; they are smaller, less bright in appearance, and not so rich in colour. This may be owing to the fact that the Lagos seeds were gathered before they were fully ripe. In any case the market value is very low, and it is doubtful whether West African seeds can be shipped to this country at a profit.

4. The subject of annatto has already been very fully treated in the *Kew Bulletin* (July and September, 1887). It is a matter for consideration, if the export of the seeds will not prove remunerative on the West Coast, whether it would be possible to prepare the flag or roll annatto. There is a regular and steady demand for annatto in this form, and the charges for freight are con-

siderably reduced. The methods adopted in the preparation of flag or roll annatto are fully given in the *Kew Bulletin* for July 1887.

I, am &c.,

(Signed) D. Morris.

The Hon. R. H. Meade, C.B.

The supposition in that early period of the history of this new product in attributing the inferiority of the seed to premature gathering is quite natural; but since it has been pointed out in the June number of the *Agricultural Magazine* that there are more than two varieties of annatto growing in different countries, one inferior to the other as regards the quality of the colouring matter each contained, it may be safely inferred that the variety growing in Lagos is not the same as what we have in Ceylon. And if the seed now selling in the English market at 1d. per lb. is the same as the sample referred to in the above correspondence, I fear it wont pay the growers to send any more there!

In my next I hope to give some more interesting notes.

A. VAN STARREX.

Matale, 17th July, 1899.

RAINFALL TAKEN AT THE SCHOOL OF AGRICULTURE DURING THE MONTH OF JUNE, 1899.

1	Thursday ..	Nil	17	Saturday ..	·15
2	Friday ..	Nil	18	Sunday ..	·28
3	Saturday ..	·38	19	Monday ..	·46
4	Sunday ..	1·05	20	Tuesday ..	·24
5	Monday ..	1·72	21	Wednesday..	Nil
6	Tuesday ..	1·17	22	Thursday ..	Nil
7	Wednesday ..	Nil	23	Friday ..	Nil
8	Thursday ..	·98	24	Saturday ..	Nil
9	Friday ..	1·3	25	Sunday ..	Nil
10	Saturday ..	·64	26	Monday ..	·01
11	Sunday ..	Nil	27	Tuesday ..	·02
12	Monday ..	1·12	28	Wednesday..	·25
13	Tuesday ..	·48	29	Thursday ..	1·09
14	Wednesday ..	·29	30	Friday ..	·6
15	Thursday ..	Nil	1	Saturday ..	Nil
16	Friday ..	·5			
				Total..	12·73

Greatest amount of rainfall in any 24 hours on the 5th inst., 1·72 inches.

Mean rainfall for the month ·68 in.

Recorded by Mr. J. A. G. Rodrigo.

OCCASIONAL NOTES.

The Colombo Agri-Horticultural Society's Exhibition was held on July 21st and 22nd and proved to be a great success. The attendance was large, being estimated on the first day to have exceeded 3,000. The exhibits of fruits and vegetables though not large in number were of a good quality. Special accommodation was provided for arts and manufactures and cattle, and both sections were well represented. His Excellency the Lieut.-Governor attended the first day and distributed the gold medals. On the second day Mrs. S. M. Fowler, wife of the Hon'ble the Govt. Agent, Western Province, distributed the silver medals.

Only nine gold medals (of exceptionally high value and finish) were awarded to the following:—

Mr. P. D. Siebel (collection of flowers and pot plants).
Mr. A. J. R. de Soysa (Cinnamon).
Mr. A. W. D. Jayasuriya (Paddy).
Lady de Soysa (Tea).
Mr. George C. Warr (Coconut Oil).
Mr. J. W. C. de Soysa (Native Bull).
Mr. T. Sanmugam (Poultry).
Mr. Weerakody (Collection of native fruits).
Mr. C. C. Barber (Cacao).

Mr. S. M. Burrows, the new Director of Public Instruction, will arrive before the end of the year and resume duties probably in November. While welcoming him we cannot but feel sorry to lose Mr. Harward, the Acting D.P.I., who has proved an ideal Director and won the esteem of all.

The report of the Agricultural Commission is now due and will no doubt be forwarded to Government within the month. It is being eagerly looked forward to, as the deliberations of the Commissioners have so far been of a private nature. We trust the best decision has been arrived at for the good of the agriculture of the Island.

The operations of the Paris Exhibition Committee are taking practical form, and Exhibits under the various sections are being now made up, and indeed are beginning to come in. The Hon. Mr. C. P. Layard has succeeded the Hon. Mr. Ellis as Chairman.

Foot and mouth disease broke out in the Government Dairy despite all the precautionary measures that are in force against the incursions of epizootics. There is no doubt that the dairy herd was infected at the Havelock Racecourse where the animals are daily sent to pasture. These grounds are, as a rule, over-run by stray cattle during the night, and the virus of the disease was most probably deposited on the pasture grass by these stray animals. The dairy is once again quite free from disease, though the occurrence of the outbreak has caused a serious diminution in the output of milk.

FIBRES.

It has already been noted as an interesting fact, though in no wise a remarkable one, that the most valuable commercial fibres of today were the prominent fibres of ancient times, illustrating, in a word, the survival of the fittest. Flax, cotton, hemp, the liliaceous fibres, many of the palms, reeds, and grasses were known and valued in past ages on both hemispheres, being employed in connection with the common animal fibres, as wool, hair and silk. When or how vegetable fibres first came to be used will never be known, but it is possible that they were first employed in aiding man to secure his food, as the natives of every country from the burning tropics to the frigid north have drawn largely upon the resources of the vegetable kingdom for their fish

lines and nets. And it might further be conjectured that the rude knotting of the twisted filaments of fibre in the form of nets may have first suggested weaving and the substitution of vegetable clothing for the skins of animals.

Flax has a greater antiquity than any of the fibres of which we have knowledge, for its cultivation goes back to the Stone Age in Europe. It is known to have been manufactured by the Swiss Lake Dwellers, a people contemporaneous with the long-extinct mammoth and other great mammals of the Quaternary Epoch, as specimens of the straw, fibre, fabrics, etc., prepared by them are preserved in the Museums. It is supposed that the species cultivated at that remote period of the world's history, concerning which no written records remain, was *Linum angustifolium*, which at a later period, though still remote by four or five thousand years, the Egyptians cultivated the species known today as commercial flax (*Linum usitatissimum*).

Before the books of Genesis and Exodus were written Egyptians were skilled in spinning and weaving flax, for both the culture and the manufacture of this textile are pictorially carved upon the bas-reliefs and upon the walls of palaces, temples, and tombs. Egyptian fabrics of linen 4,500 years old and preserved in the museums and among the mummy cloths, fabrics from the most delicate tissues to linen, like sailcloth, have been found, and as many as 350 yards were sometimes used to enwarp one body. The linens were both white and dyed in colors: yellow, red, and purple, and they were handsomely embroidered. Spinning and weaving in Bible times were household industries, as we are assured by many references to women and flax. The Phœnicians did much to extend the culture of flax and the art of weaving linen, as their ships plowed the Atlantic more than three thousand years ago, even journeying to Britain, for they were a nation of traders, and there is every reason to believe that the Chaldeans excelled in spinning and weaving flax, while the Babylonians, centuries before Christ, were noted for their luxury and the high state of developement of their textile art, flax, cotton, and wool being manufactured by them.

Wool was more grown in ancient Greece than flax, though the latter textile was produced in certain favourable districts and imported in large quantities for manufacture. There was a distinct linen industry, slaves being the operatives, as well as a household industry, for whether in the cottage or the palace, if possible, a special room was set apart for the occupation of weaving. In Homeric times not only were maids and ladies of high degree familiar with weaving, but with spinning and embroidery, and the distaff and spindle were often made of ivory or of gold. As in Greece, so in Rome, there were regular linen establishments, and at the same time a domestic manufacture practiced by maids and matrons. Woollen was earlier used for clothing by the Romans; then linen was employed, first for domestic uses, then as a dress material, the women adopting it before the men.

Regarding the early use of linen in our own country, the time when American history began to be made is so recent that the word ancient does not apply. It has been stated that both flax and hemp were known to the ancient Mexicans or Aztecs, though I can refer to no records which relate to their use.

While it has been shown that cotton was the ancient national textile of India, its cultivation and use were by no means confined to that country. Flax was the aristocratic textile of Egypt and was generally cultivated, but cotton was grown in the southern part of the country. Cotton and linen were sometimes woven together (flax warp and cotton woof), just as mixed "tow linen" is made in the mountains of Virginia and North Carolina today. These Egyptian mixed fabrics, as well as pure cotton cloths, were largely used in upholstery as the coverings of chairs and couches, and probably also as drapery hangings. The cottons of India were famous and Hindoo muslins were formerly produced that were so fine that when laid upon the grass and wet with dew they became invisible. The marvelous fabrics of Cos and Tarentum, by some said to have been made from cotton, were more likely silk, as they are described as floating like mist around the female form, disclosing the contour like gauze veil. There is also the record of a muslin turban 30 English yards in length, contained in a coconut set with jewels, which was also exquisitely fine that it could scarcely be felt by the touch. It is impossible to say how far back into the ages cotton was first used in India, and though it is referred to 800 B.C., we may be sure that the industry was old at that time. Cotton was a late introduction into Greece, though it was known 200 B.C., and even linen was an introduced textile, which came slowly into favor at a time when wool was almost universally used.

VELVET BEANS AS HUMAN FOOD.

The shelled beans have been used as food for cattle, hogs and chickens and even as a table vegetable. The writer has up to this time made no experiments to determine the suitability of the beans for feeding to different classes of live stock.

Inasmuch as there is on record one well authenticated case of injury following the use of green immature shelled velvet beans as a table vegetable, caution is advised in using the beans for human food. This case of apparent poisoning or acute indigestion following the eating of green velvet beans, boiled, was carefully investigated by Mr. V. K. Chestnut, of the U.S. Department of Agriculture. He has kindly permitted the writer to examine his correspondence with Mr. J. S. Sergeant of Florida, who reported the only case on record, where velvet beans proved decidedly harmful. With him green boiled velvet beans proved injurious, not only to men, but also to the poultry. Mr. Sergeant writes as follows concerning velvet beans as a substitute for beans:—"We have since used them as coffee two and three times a day for three or four months continually without observing any deleterious effect. If properly ground they make a very pleasant drink. The least bit of burning makes the beverage too bitter, and on the other hand too little browning, leaves them with an unpleasant taste and odor." Four Floridians who have

had extensive experience with velvet beans were consulted on the suitability of velvet beans for food of man and beast. All hold the opinion that they contain no poisonous principles, but three of these four correspondents agree that the velvet bean is not a desirable table vegetable. The fourth, Mr. E. J. Johnson, Leesbruy, Fla., writes thus:—For human food they are by all odds the richest and best vegetable I have ever tasted. If eaten in large quantities they will nauseate the stomach, not from poison, but from richness. They should be soaked in water over night. This separates the inside hull from the bean. They should then be parboiled in at least two waters. Then cook them as you do any other beans.

The air-dry shelled beans analysed by Prof. H. H. Persons, (Fla. Bul. No. 35), contained 6·29 per cent. of fat, 53·5 per cent of nitrogen-free extract (starch, etc.), and the very large amount of 18 81 per cent of protein or muscle forming material. This indicates that the beans are even richer in food materials than the cowpea, which ranks especially high as a food-stuff.

OBSERVATIONS ON THE AGRICULTURAL EDUCATION OF THE ISLAND OF CEYLON.

The necessity for the appointment of the present Agricultural Commission, if I am not mistaken, has arisen from the fact that a cry has been raised that the Colombo School of Agriculture is not doing what was expected of it, or in other words, that it has proved to be a failure. The re-organization of the School, therefore, with a view to devising a more liberal system of agricultural education among the native population of the island seems to me to be one of the most important duties that the Commission has to perform. Before proceeding further, it will therefore be useful at this stage to inquire,

1st. What was expected of the Agricultural School to do when it was first started.

2nd. What it has done so far, and

3rd. Why it has apparently been a failure.

It is of course impossible to show by statistics how much good an institution of this nature may do to a country, nor is it necessary here to enumerate instances in which this particular Institution has been of service to the island. From an educational point of view nobody can be blind to the fact that the School has done an immense deal of good. In this respect I may make bold to say that it has done more good to the native population of this island than either the Royal Botanic Gardens or the Colombo Museum, both of which Institutions absorb a much larger share of the revenue than the School of Agriculture. The School is purely a scientific and a technical one, and anybody who is not conversant with the sciences that go to help an agriculturist, nor anyone who has not studied the methods of cultivation as practised by our village goiyas is really unable to see what good an Agricultural School is likely to do to the people. The Hon'ble Mr. Mitchell once observed: "With regard to the good the school was doing nobody could be blind to that. Lads came from the country and studied Agriculture there and went back to their villages, and no one can be blind to the fact that very important results must follow from that in the course of time." A knowledge of Agriculture with its allied sciences such as Botany, Chemistry, Veterinary Science, &c., will at least enable a lad to go about with his eyes open, while the influence that he could exercise on the people among whom he moves is from an educational point of view incalcuable.

Mr. H. W. Green, the founder of this Institution, was always a keen observer of the various methods of cultivation as practised by our village goiyas, and he exactly knew in what directions improvements should be carried out. I am speaking with some authority, as I have had the opportunity of personally discussing these matters with Mr. Green on several occasions during my connection with the Agricultural School from its very commencement in 1884 and until 1890 as a teacher of Botany, Chemistry, &c., there. His Primer of Agriculture which is at present taught in every village Government School from the Vth Standard upwards is highly appreciated by the villagers.

The Agricultural School has at least succeeded in teaching our educated youths the dignity of labour. In the words of Mr. Elliott, the late Government Agent, "the young men who have passed through it are a credit to the school in which they were trained. They are capable Agriculturists and intelligent workmen who understand their work, and know how and when to plough, to sow, to water and to reap."

The iron plough which Mr. Green tried to introduce was undoubtedly a failure, and some people are under the impression that this was all that the School tried to do; and when the plough failed the school was also put down as a failure. The plough must be left out of account altogether in considering the resutls of the school. All that Mr. Green tried to do was to find out an implement by which the soil may be properly turned up and properly tilled and with the least expense to the goiya. That the soil must be properly tilled before anything can be made to grow on it successfully is an admitted fact; the point was to get a suitable implement.

It was expected that the youths who studied at the school would go back to their own lands and take up Agriculture as their profession; but even the big landed proprietors who have passed through it, with one or two exceptions, have not done so. The reason for this is not far to seek. Anybody who is acquainted with native character will be able to supply an explauation. It is however a mistake to suppose that simply because these young men did not take to Agriculture the School was a failure, and the money spent in teaching them was spent in vain.

Again, a promise was I believe held out by Government at the time that the school was started, that preference would be given to young men who had studied Agriculture in filling up vacancies as Korale Mudaliyars, Muhandirams &c. There is no instance on record in which any of the young men who passed through the school

ever attained to this distinction. This is not very encouraging.

Now I come to an important point. When Mr. Green started the school, he was anxious to have it as part and parcel of the old Normal School, the only training Institution for Government teachers. He succeeded in this, and it was placed in charge of the Principal and Science Master of the Normal School who was a European. Unfortunately, soon after the school was started Mr. Green, who was then the Director of Public Instruction fell ill and had to leave the island on furlough. The Vernacular Normal students who were trained to be village teachers were then taught Botany, Chemistry and Agriculture in addition to the ordinary school subject. Mr. Green's idea was to give these teachers a training in practical Agriculture also, so as to enable them to teach Agriculture to the villagers through the school boys. This was a capital idea. The influence that a good village teacher can exercise among the people with whom he mixes is great. The boys who pass through the village school will be the future men of the district, and what an opportunity a teacher who understands his duty has in forming the character and habits of the people and reforming existing methods of cultivation; while very little can be done by directly going to the older people. Agricultural reform must be made to pass from boy to man, and this can only be done through educational agencies. Mr. Green had recognised this fact before he started the school, but unfortunately during his absence in England the Government decided to abolish the old Normal School and to open village Training schools instead. A large saving was thus effected, but from then the Agricultural School had to stand alone. Mr. Green on his return to the island was apparently much vexed at this, and we read in his Administration Report that he never ceased to regret the closing of the old Normal School. He was, however, equal to the occasion, and decided to make teachers of the Agricultural students and the sanction of Government was obtained to appoint a number of students as Agricultural Instructors. So long as Mr. Green was at the helm things went on very smoothly. Passed students were sent out expressly with the view of showing improved methods of paddy cultivation to the villagers. The experiments conducted by these young men from all we gather from records proved successful in most cases, and the villagers in some instances learnt much from them. But in a country like this where the people are so conservative it is impossible to create a lasting impression upon them by experiments conducted in a haphazard manner here and there. A series of experiments for a great length of time at each place and under proper guidance should have been systematically carried out. Unfortunately this was not done. Young Instructors were in most cases placed under the guidance of the native chiefs of the district. These chiefs had not received any training in Agriculture, and they themselves were as ignorant as the ordinary villager. The Instructors were further much handicapped in their work, and were rather expected like the Hebrew of old to make bricks without straw. They had no money, no seed paddy, no implements given them, but were generally attached to an ordinary village school and expected to cultivate paddy in an improved style. Progress, under such circumstances, was of course impossible. Mr. Green's primary object in starting the school was to help small agriculturist and not the big one; small owners of little tracts of land who suffered distress from want of food. That want of food he had seen, and he was satisfied that it was caused by the people not knowing what to do with what they had. They threw away 3 bushels of paddy in sowing when 10 seers would be enough, and this saving of seed paddy would keep a family in comparative comfort for a month or six weeks : and that in a time of famine and distress was a great thing. In some of the Kandyan districts of the island the preparation of the land for paddy is apparently most carefully done, and weeding and transplanting are carried out. These methods are, however, confined to only a very small area of the island, and the people even here have as yet to learn a great deal as regards the most improved methods of preparing the land and various other details, such as the selection of seed paddy, &c.

The Agricultural Instructors are no more, and the step that the Government took in discontinuing their services is, I think, a mistake. These young men should have been properly guided, Their work should have been constantly supervised and reported upon by somebody who was competent to do so. In my opinion there were a few among them who were incompetent for the work, and they should have been dismissed; while there were others who were really capable men, and they could have done a deal of good if they had received sufficient encouragement to do so. I have, I think, so far partly explained the primary object in starting the Agricultural School, and have also to a certain extent pointed out what it tried to do and has done. I shall next attempt to show why it is that it has apparently been a failure in the eyes of the public.

(To be continued.)

INFECTIVE DISEASES OF ANIMALS.

The above is the title of the 1st vol. of a work on Veterinary Pathology, recently written by the German Veterinary Surgeons Friedberger and Fröhner, and translated and edited by Veterinary Surgeon Hayes. Among the commoner diseases treated of in this work are Septicaemia and Pyæmia, Strangles, Distemper, Ezootic Abortion, Dysentery, Anthrax, Foot and Mouth Disease and Rinderpest.

It is an up-to-date book containing the latest information on the discases treated of, and is considered one of the best authorities on the subject. The term *'infective diseases'* is used to include both contagious and infections diseases, a distinction which the translator calls in the appendix as mainly one of degree, as the difference in their mode of transference is often more apparent than real.

The following passage occurs under the head of rinderpest;—"During the year 1897, Koch and

Edington have more or less successfully carried out extensive protective inoculation experiments against rinderpest with infected bile. The most hopeful results, however, appear to be obtainable from the method of Danysz, Bordet and Theiler, a translation of whose report may be seen in the Veterinary Record of the 26th February, 1898.

"These observers at first confer comparative immunity by the injection of immune blood on experimental cattle, to which they then transmit rinderpest by natural infection, with the result that these partially protected cattle take the disease in a mild form, and, on recovery become immune for the remainder of their lives. In this, these pathologists act on the knowledge that the injection of blood serum obtained from cattle which have recovered from rinderpest, renders the experimental cattle capable, for a short time, of withstanding the effects of the disease more easily than they would otherwise do, although it does not prevent them from taking the infection. In this method, defibrinated blood is used in preference to blood serum, as it is more economical in practice, and is at least equally effective."

A more detailed account of this method of treatment can also be found on reference to the last October number of the *Agricultural Magazine.*

The distinctions drawn between rinderpest and other diseases will be found useful. It is thus differentiated from dysentery. "In *dysentery* the diarrhœa appears earlier and contains more blood. The intestine only is implicated and the affections of the mucous membranes (mostly eyes, nasal cavities &c.) are absent. The *post mortem* appearances are also different." Again, differentiating it from the gastric form of anthrax the authors say that the latter disease runs a much more stormy course and is not directly infectious. *Post mortem* and bacteriological examinations also materially help in diagnosing these diseases correctly.

The description given under the head of "Deer and Cattle Disease" is interesting, especially because it tends to throw light on a disease called *kandamalai* in Ceylon. It has hitherto been thought that this is a form of anthrax and was called gloss-anthrax. Of "deer and cattle disease" we read:—"It was usually mistaken for anthrax with the lingual form, of which it possesses in some cases great similarity. The question whether the majority of cases described as "anthrax of the tongue" or "gloss-anthrax" were not those of this disease is almost self-suggestive."

The following are the symptoms of the disease as it occurs in cattle:—Loss of appetite, diminution of milk, temperature very high; the soft parts of the head, especially of the face, intermaxillary space, dewlap and neck are swollen often to an enormous size. The swellings are tense, hard, hot, painful and unyielding. Symptoms of stomatitis and pharyngitis appear at the same time. There is salivation with difficulty of swallowing; the tongue hangs out and is swollen. Difficulty of breathing and even actual suffocation may occur on account of the great swelling about the throat. The visible mucous membranes are of a brown-red colour and infiltrated with hæmorrhages. Excessive dyspnœa and colic come on at the last stage.

This disease is distinguished from anthrax by the absence of the anthrax bacillus in the blood, absence of enlargement of the spleen and of the characteristic tarry condition of the blood, which are always present in anthrax. Deer and cattle disease can, unlike anthrax, be easily transmitted to pigs, scarcely to sheep and never to man. Death generally takes place within 24 hours.

Free incisions into the swellings with subsequent application of strong disinfectants is recommended by way of treatment.

Injections of a 5 per cent solution of creolin and the internal administration of creolin are also recommended.

One interesting and important feature of the volume under review is that, amongst others, it directs attention to diseases that can be communicated to man by milk, meat, infection, inoculation, &c., and is therefore useful to doctors as well as to veterinary surgeons. Among diseases of this description are aptha-epizootica, anthrax, tuberculosis, influenza, actinomycosis, diptheria, tetanus, glanders and rabies.

The second volume, which has not yet been published, will more particularly concern the veterinary surgeon, as it will deal with the diseases of animals purely.

E. T. HOOLE.

ABOUT THE KOLA NUT.

Most people are acquainted with the Kola nut tonic, so universally sold, but few know much of the great esteem in which the nut is held in the Soudan. As an article of commerce in Central Africa, it far and away exceeds in importance every other article of commerce throughout the whole of the Western and Central Soudan. Mr. C. H. Robinson, in an article on the Kola nut, in his book "Hausaland," says:—

Though not found originally in any part of the Hausa States, there is nevertheless no village or hamlet, however small or remote, in which it is not constantly used. The Kola nut is the product of a tree called *Sterculia acuminata*, which is found in the greatest perfection in the country to the back of the Gold Coast Colony. It is also found as far east as the River Gambia, and, with more or less frequency, in all the intervening country.

The fruit resembles a large-sized chestnut, and is encased in long pods, each containing 4 or 6 nuts. It grows like chestnuts, in bunches of 3 or 4 on the tree. Round the Kola nut there is usually a black line, sometimes two, at which it can be divided or subdivided. The colour is generally brick-red, though in some countries, especially in the Far West, there are all sorts of intermediate shades between red and white. In the country of the Bambara tribe the Kola nuts play an important part in private and public life. The colour in this case has a special significance: a white kola is always a sign of friendship and hospitality, whilst proposals of marriage, acceptances or refusals, defiances, declarations of war, &c., are conveyed by the sending of a number of kolas of the prescribed colour.

The Kola from Gandja, which is of a uniformly red colour, is the one most frequently brought to Kavo (the capital of Central Soudan), as it keeps better than any other. The most minute care and attention on the part of the merchant are necessary in order that the Kolas may reach the market in good saleable condition. They are carried for the most part in Kavo-made baskets, each of which contains 3,000 or 4,000 Kolas, whilst two of them form a donkey-load. If treated with the utmost care the nuts may be preserved fresh for 2 or even 3 years, but in order to secure this they must be kept constantly damp. If exposed to the air and allowed to dry the Kola opens along the black line mentioned above, wrinkles, and becomes as hard as wood. In this condition it has lost 90 per cent of its value. During the march the nuts are packed in baskets and covered with fresh green leaves. Every 4 or 5 days they ought to be repacked, in order that the leaves may be renewed and that the nuts which are touched with mildew may be removed.

The large profits obtainable on the sale of those which reach the various markets in good condition compensate for the risk and trouble of their carriage. At Gandja the average nut costs 5 cowries; at Say, on the Middle Niger, 70 to 80 cowries; at Sokoto, 100; at Kavo, 140 to 250; at Kuka, on Lake Tchad, 250 to 300.

What, then, one may naturally ask, are the peculiar virtues of this fruit, which forms by far the most important article of commerce in the Central Soudan? The fact that for generations past it has been eagerly sought after by rich and poor alike, and that men will constantly spend the last cowries they possess in buying one to chew, seems clearly to show that it is something more than a mere luxury. The scientific analysis of the nut shows the existence of a large quantity of tannin and of an alkaloid analogous to theine and caffeine. The natives believe that it keeps off the pangs of hunger and enables them to work for long periods without food. As a stimulant, it takes the place which tea and coffee with us, both of these being practically unknown. Owing to its extremely bitter and unpleasant taste, we were prevented from giving the sustaining power of Kola a fair trial. On the occasions, when, through lack of food we would gladly have made the experiment, we were unable to obtain the nut. Whatever its real virtues may be, it is certain that the commercial value of Kavo is to a very large extent dependent upon the millions of Kolas which its market contains.

On one occasion I met a caravan consisting of about 1,000 men, together with a large number of donkeys carrying Kola nuts up towards Kano. The value of the nuts in the caravan, which was only one out of several that annually came to Kavo for the same purpose, was little less than £100,000 sterling. The whole of this immense trade is at present in the hands of natives, as the course of the Niger is not such as to allow of the Kolas being carried by water any part of the way.

[The name of Mr. J. P. Williams, the well-known Seedsman of Henaratgoda, is always associated with Kola nut in this colony. Mr. Williams sent some excellent specimens of dry Kola nut to the Colombo Agri-Horticultural Society Show held last **month.—ED.** *A.M.*]

A NEW SYSTEM OF SOIL CULTURE.

This is the title of an article in the *Rural Californian*, in which a great deal is written in praise of Mr. H. W. Campbell, the originator of the so-called new system of soil-culture. We would quote the following which is given as part of a report of the Northern Pacific Railraod Company, to give some idea of the new system referred to:—

"The Campbell method consists in a complete re-arrangement and pulverising of the top seven or eight inches of soil, and turning it as nearly bottom upward as possible. The plant food in the soil is found at the end of each season very largely concentrated in the top four inches. This plant food must be ploughed down into the bottom of a furrow seven or eight inches. From this depth it will be placed by the action of moisture, just where the little feeders of the plant roots want it. Immediately after ploughing, the lower four inches of the furrow-slice must be packed as firm as possible, for four important reasons:

"1. To completely obliterate all cavities. Where the furrow lies loose, the air circulates under the plants and the ground dries out. It must not be permitted to do this. It is ruinous to the crop.

"To cause moisture to gather from six to eight inches from the surface. Why? Because the stubble and manure, and other vegetable matter, is there, and water is necessary to rot it and fit it for the food of the crops. Unless this is done, the plants are robbed of their most valuable food.

"3. To get the right conditions for rapid root-growth in the early part of the season. For this a fine, firm, moist soil must be had. The lower part of the furrow-slice is the root-bed, and must be kept in just the right condition if we are to get a rapid and vigorous root-growth.

"4. By firming the root-bed we hold more moisture. More than this: The pores in the ground are made so small, that the water creeps through the soil readily by the force called capillary attraction. By increased capillary attraction moisture is drawn more rapidly and from a greater distance. This gives the plant food and drink at critical times, when the weather is hot; when the hot winds blow, and when the evaporation from the leaves is greatest. Your crop never suffers at such times if there is plenty of water for the roots. But a shortage of water at that point may ruin your whole crop in a day."

Large increases in crops are reported as the result of actual experiments carried out on the lines of this system. We shall refer to this subject in a future issue.

ORIGIN AND FORMATION OF ORGANIC MATTER IN PLANTS.

By the ordinary method of sand culture, in which the plant is grown in sand free from organic matter, it may be demonstrated that the plant accumulates considerable quantities of carbon and nitrogen during its growth. This carbon and nitrogen with the elements of water form the organic constituents of the plants, which with a small quantity of mineral ingredients make up the

roots, stem and leaves, and give the seed its valuable nutritive qualities. Since the soil did not contain either carbon or nitrogen, the plant must have drawn these two elements from the air. It is the purpose of this article to explain the nature of this fixation of the carbon and nitrogen of the air.

The classic experiments of Priestly, in 1771, established the fact that plants exhale oxygen. Later researches made by Ingenhous and by Tennebier explained the decomposition of the carbon dioxide of the air and the evolution of oxygen by the leaves under the influence of light.

The earth's atmosphere contains only three parts of carbon dioxide in 10,000 of air. It is evident, therefore, that in order that plants may obtain the carbon which they require from a medium so poorly supplied with it, rapidity of absorption by the tissues must compensate for the scarcity of the element in the air.

In the first place the absorption of carbon dioxide is favoured by the form of the leaves, which is such that they offer, as compared with their weight, an enormous absorbing surface. In a tree the leaves are at the extremities of infinitely ramified, flexible branches, which are agitated by the slightest breeze, thus facilitating contact of the leaves with the constantly renewed layers of air about them. That the absorption of carbon dioxide is very rapid may be shown by placing a leaf from which the air has been exhausted by means of an air-pump in an atmosphere of carbon dioxide in an apparatus which measures the change of the volume. It will be observed that absorption begins instantly, but that it is largely dependent upon the quantity of the water present in the leaf. Thus, the co-efficient of absorption of the carbon dioxide in old leaves of Japanese Euonymus, containing 66·3 per cent. of water was found to be 0·70 at 15°, while in young leaves of the same tree containing 75·4 per cent. of water the co-efficient was 0·83. A comparison, at different temperatures, of the co-efficient of absorption of carbon dioxide in the leaves with that in pure water shows the absorption in the leaves to be somewhat greater than in pure water. This indicates that the carbon dioxide is not simply dissolved in the water in leaves, but that it combines with the water to form a hydrate. It will be shown later that this fact is of great importance.

The carbon dioxide which is absorbed by the leaves is decomposed, and the products of this decomposition are utilised in the formation of the simplest primary organic compounds, from which the more complex constituents of plants are derived. To accomplish this the principal condition is that the leaf be perfectly healthy.

If it does not contain its normal proportion of water, *i.e.*, if the roots do not draw from the soil as much water as is given off through the leaves the decomposition of carbon dioxide is checked. Assimilation has ceased when, as at the end of a summer day, the leaves of the tobacco plant, for instance, are hanging down the stem, or those of the beet lie flat on the soil. In fact it has been found that the decomposition of carbon dioxide begins to decline even before the leaves have lost their turgescence.

Light is absolutely essential to the assimilation of carbon by the leaves of plants. The principal source of this energy is, of course, the sun, but attempts have been made to utilise artificial light, especially electric light, for foreign plants. Siemens in England, Bailey in America, and the author in France have made experiments of this character. Since there is no doubt that, with the increasing use of water power for the production of electricity, a large supply of electric light can be economically obtained, it is highly interesting to learn what its action is on plants. All observers have found that rays from an arc lamp without a globe exert an injurious influence, blackening the epidermis of the leaves. During the author's experiments in 1881 the epidermis exposed to the direct rays became black, while the parts protected by the upper leaves preserved their beautiful green colour. The line of demarcation was as sharp as in a photographic plate. The injurious influence ceased as soon as the lamp was surrounded by a white glass globe through which the ultra-violet rays passed with difficulty. To understand the influence which the heat rays situated at the other extremity of the spectrum exert on vegetation, we must recall to mind that in respiration leaves, like all other plant organs, absorb oxygen and exhale carbon dioxide, a process which is precisely the opposite of that which occurs in assimilation.

It must also be remembered that the activity of respiration increases with elevation of temperature, while rise in temperature has only a very slight effect on assimilation. Maquenne and the author some years ago made a careful study of the action of both light and heat rays on leaves. In this research two source of light were used, the Drummond light, which is obtained by rendering a piece of quicklime incandescent by means of the oxhydrogen blowpipe, and the Bourbonze lamp, which is composed of a cylinder of platinum wire gauze, which becomes incandescent when heated with illuminating gas, the combustion of which is promoted by a strong current of air. The leaves were introduced into tubes containing an atmosphere of known composition, and were placed very near the lights, but were protected by screens containing transparent liquids of varying diathermanous properties. In some cases water was used, which allowed the light rays to pass but retained the heat rays. In other cases the screens were filled with benzene or with chloroform, which are also transparent but much more diathermanous than water. Exposing the leaves to the action of the Drummond light, which is poor in heat rays, and surrounding them with a screen filled with water, promoted reduction, the proportion of carbon dioxide in the tube diminishing, while the oxygen increased. When the screens were filled with chloroform, however, and the Bourbonze lamp was used, which is rich in heat rays, the opposite effect was obtained, *i.e.*, the carbon dioxide increased and the oxygen diminished. In this case the phenomena of respiration took the place of those of assimilation.

Passing from the study of the chemical and heat rays to that of the light rays in the central part of the spectrum, we find that the latter produce very different effects from the former,

Draper demonstrated long ago that the orange rays are the most active in decomposing carbonic acid in the leaves. This conclusion was fully confirmed by the researches of Sachs, Cailletet, and the author, made nearly 30 years ago. The reason for this special action of the rays of this part of the spectrum were not investigated until the Russian physiologist, Timiriazeff, took up the subject. He found that the rays which are most active in decomposing carbon dioxide are the orange and yellow, which are absorbed by chlorophyll when the latter is examined with the spectroscope. The same fact has been beautifully demonstrated by Engelmann. He received a ray of light upon a prism so placed under the objective of a microscope, that on looking through the instrument the different rays of the spectrum could be seen. He then put a drop of water on a side and added a filament of green alga and some putrefactive bacteria, which were aerobic. It was observed that the bacteria congregated in great numbers on that part of the alga lighted by the yellow and orange rays. In the green region only a few were observed, and these finally collected in the blue portion. In other words, the bacteria collected in the different rays in numbers approximately proportionate to their activity in assisting the decomposition of the carbon dioxide by chlorophyll.

Evidently the rays which pass freely through the chlorophyll exert no action. So it happens, as shown above, that the extreme red or the green rays are without effect on the decomposition of carbon dioxide. On the other hand, the orange and blue rays are retained and absorbed by the chlorophyll, and thus made available for the work of decomposing carbon dioxide. The fact that orange rays are much more effective than the blue is easily explained. The decomposition of the carbon dioxide, with the evolution of oxygen, requires an expenditure of energy equal to that involved in the burning of carbon in oxygen. In order, therefore, that the rays may be effective for reducing carbon dioxide, they must be not only readily absorbed but sufficiently warm. The orange rays, which are situated at the side of the spectrum where the heat rays are concentrated, are far more energetic than the blue, because, in addition to being readily absorbed, they are warmer than the latter.

The decomposition of carbon dioxide can only be brought about by the aid of outside energy. This energy is supplied by the sun's rays. Since decomposition of carbon dioxide in the chlorophyll cells is the source of the organic constituents of plants, and since these substances are essential to the life of animals, we see that all living beings on the earth's surface owe their activity primarily to the sun.

RINDERPEST.

D. HUTCHEON, COLONIAL VETERINARY SURGEON, CAPE COLONY.

As Rinderpest has re-appeared in the Transvaal and Bechuanaland several months after it was believed to have died out in all the states and colonies south of the Zambesi, it is of importance that the farmers should consider what is the most satisfactory method of inoculation to adopt, should the disease again invade their herds. When writing my annual report for 1897-98, and reviewing the character of the work done up to that date, and the various methods of inoculation which were adopted for the purpose of arresting the spread of the plague, and saving as many as possible of the cattle exposed to its ravages, I remarked, with reference to inoculation, that if we had to commence the work over again, I had very little doubt that, profiting by the information which we had gained by painful experience, we could improve upon the results which we had previously obtained by the adoption of any one of the methods which had been tried. For example, in carrying out Koch's method of bile inoculation, if the biles were extracted and selected from affected animals in the last stages of collapse, or immediately after death, (a system which was carried out in Basutoland with such satisfactory results), a stronger and more uniform immunity would have been given than was frequently obtained. Again, our experience clearly indicated that if a larger dose than 10 c.c. had been given, or a second inoculation of bile injected, the immunity conferred by the bile would have been very much strengthened and the period of protection considerably extended. Further, it is very probable that if all suitable biles could have been kept in an ice chest fer some days before being used, infection would not have been conveyed to clean herds by bile inoculation, as was undoubtedly done in the majority of instances where fresh bile was used; and we would not now follow Koch's bile inoculation by an injection of virulent blood. As this is still advocated I will refer to it again. I, however, expressed myself as being still in favour of using an injection of virulent blood after inoculation with glycerinated bile; beginning with very small doses, and repeating the injection at short intervals and in increasing doses until a decided reaction was obtained, but I do not even advocate that now, for reasons which will appear later on.

With respect to the serum method of inoculation, it is a very interesting fact that although all the cattle in a herd are given the disease in a more or less modified form by this method of inoculation, it is comparatively rare that infection is carried from such a herd if ordinary precautions are taken, and quarantine regulations enforced. In the Cape Peninsula, serum inoculation was not generally adopted, nor carried out in a systematic manner in any locality. Individual herds were inoculated at different centres all over the district, yet the disease was not spread by that means. On the contrary, by the aid of serum inoculation, the disease practically disappeared from the Cape, Malmesbury and Tulbagh districts. I expressed the hope, therefore, that by the adoption of serum inoculation, systematically applied, the disease could be eradicated from the country.

Since the above was written, however, the disease has practically died out within the boundaries of the Colony, and until these outbreaks, which were reported from the Transvaal the other day occurred, we had no information of any cases of Rinderpest south of the Zambesi, a condition which the most sanguine optimist amongst us would hardly have ventured to predict. Such is our fortunate position, however, and the circumstances being entirely different to what we anticipated at such an early date, our opinion with

regard to the course which should be followed under the altered circumstances has undergone a corresponding change. For some considerable time, I have frequently been asked the question,—"If Rinderpest should appear either amongst my own cattle, or in my immediate neighbourhood, what method of inoculation would you recommend me to adopt?" In replying to this question I have readily and frankly given the individual querist the advice which I considered the best under the particular circumstances in which he was placed with regard to his cattle. Hitherto, however, I have been reluctant to publish advice to the public generally which would in any particular contradict the directions for inoculation which were drawn up by the Rinderpest experts at their last conference in Cape Town, and published for general information, until I felt convinced that the altered conditions necessitated some departure from the course then recommended. And in publishing these slightly altered recommendations to the public at the present time, it is due to my colleagues as well as to the public to explain that my opinion with respect to the efficacy of the preventive and curative treatment of Rinderpest thus recommended has not undergone any change. It is merely the altered circumstances which I consider require that a slightly different course should be pursued.

With respect to the serum method of inoculation, all the experts are agreed that, if Rinderpest should appear in a herd of cattle which have not been previously inoculated with bile, they should be immediately inoculated with strong immunising serum if it can be obtained. Every animal which indicates, by the thermometer, the presence of fever should receive a very large dose, while the healthy ones should receive the usual modifying dose. If serum cannot be procured, then blood freshly drawn from a salted animal and defibrinated shoud be injected in proportionate doses. And if neither of these can be obtained, then glycerinated bile should be used, as it has been shown to possess strongly curative as well as immunising properties similar to serum, when used in large doses, more especially when injected direct into the jugular vein.

(To be continued.)

GENERAL ITEMS.

Dillenia indica or *speciosa* (the Sinhalese Hondapara) is not known in Ceylon to produce an edible fruit. Dr. Trimen in his Flora merely refers to the fact that the fruit makes a lather with water and is used as soap. Dr. Watt, however, mentions that it is eaten by natives either raw or cooked—chiefly cooked in curries; adding that it is also made into a pleasant jelly, while the acid juice sweetened with sugar forms a cooling drink. Mr. Lewis Bernays, writing about the tree in the *Queensland Agricultural Journal*, says that the fleshy leaves of the calyx, when the fruit is fully matured, have an agreeable acid taste, and are eaten raw, cooked in curries, or made into sherbet; inside are numerous reniform seeds, surrounded by a pellucid glutinous matter, and used for making a palatable jelly, for a cough mixture, or a cooling drink in fevers, and otherwise. The bark and leaves are both astingent, and are used medicinally.

A Zanzibar paper says: Throw a bit of alum about the size of a marble, into a bowl of water and wet the hands and face and any exposed parts lightly with it. Not a mosquito will approach you. They hum about a little, and disappear.

The United States Government at the experiment stations has succeeded in grafting the tomato top on to the potato root, and strange as it may seem the growing of a crop of tomatoes does not seem to interfere with the growth of the potato, and we have no doubt that it will become common some time by this means to grow the finest tomatoes and potatoes both from the same plant.—*Exchange*

Mr. D. F. Turnbull, Martintown, Cairns district, writes to say that he has discovered a "wrinkle" worth knowing to keep cattle free from ticks. As it is important that every light should be thrown on the subject of cattle ticks, we print Mr. Turnbull's letter. He says:—"Of a few cows I have, one in particular seemed such a favourite of the ticks that I got tired of trying to keep her clean. She was down to skin and bone, when a neighbour, happening to see her, said she could not live above three days. Shortly after this, I thought of saltpetre and its effect on dead beef. I decided to try it on the cow. I ground a bit the size of two peas, with a little salt, and gave her this amount daily for three days, when half of the ticks disappeared. I then reduced the amount to one-half for the next three days, when I could count on my fingers the remaining ticks. After this, I gave her a bit—and still do so—the size of a pea twice a week, which keeps her in a thoroughly clean condition. Of course the cow put on flesh quickly, and was nearly fat in six weeks after the treatment began." This remedy, says the *Australian Exchange*, is not new. A Frenchman was travelling the colonies some time ago, who affirmed that he could cure ticks by the use of saltpetre. Mr. P. R. Gordon says that the matter was gone into by Sir Horace Tozer, and quantities of saltpetre were tried on cattle without the slightest effect. The presumption is that the cow above mentioned was just about getting clear of the ticks when the remedy was tried with such a satisfactory result. Mr. J. Irving, M.R.C.V.S., concurs in Mr. Gordon's opinion.

Veterinary Major F. Smith, M.R.C.V.S., says:—The mean ratio of carrying power to body weight is 1 : 5·757, that is to say, it takes, speaking roughly, 5¾ lb. of body weight to carry 1 lb. on the back during severe exertion (racing excepted). The rule therefore for ascertaining the carrying power of a horse is to divide his body weight by 5·757, and, if intended for only moderate work, add to the product 28 lb. It has to be noted that the observations were made upon military horses, and it is doubtful if it would work out so accurately if applied to all horses used for the saddle.

The fruit of *Aberia Caffra*, known as the kei apple, is used for making a most palatable jelly mixed with the ash' pumpkin pulp. Unripe, the kei apple is use for pickling. The plants form excellent hedges. In Ceylon we have *Aberia Gardneri* (Sinhalese kei-ambilla,) but we are not aware that any use is made of the fruit.